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AN ASSESSMENT OF THE METHODS USED TO DETERMINE
RESOURCE REQUIREMENTS FOR ENLISTED INITIAL ENTRY TRAINING

FINAL TECHNICAL REPORT

ADA102498

By

Rodney D. McConnell
William E. DePuy, Jr.
Eugene W. Kahn
William A. Lindsay
Gerald R. McNichols
Arthur Uscher

May 1980

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Prepared By:

MANAGEMENT CONSULTING & RESEARCH, INC.
5203 Leesburg Pike, Suite 608
Falls Church, Virginia 22041
(703) 931-5510

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19. ABSTRACT (Continue on reverse side if necessary and identify by block number) Management Consulting & Research, Inc. (MCR) has assessed the methods used to determine resource requirements of enlisted initial entry training by the four Military Services. Initial entry training consists of Recruit and Initial Skill Training. The study had two purposes: provide a clear understanding of the enlisted initial entry training process; and translate the training pipeline resource requirements into algorithms which can be used to examine the manpower requirements in support of initial entry training. To achieve these goals, MCR has examined the manner in which the Services determine their training resource	20. UNCLASSIFIED 394710 SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)	

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requirements. The study assesses the training process, examines the initial entry training requirements models used, and makes observations regarding Service differences.

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PREFACE

Management Consulting & Research, Inc. (MCR) has assessed the methods used to determine resource requirements of enlisted initial entry training by the four Services. Initial entry training consists of Recruit Training and Initial Skill Training. Two reports are incorporated into this report:

- The first, TR-7910-2, describes the training process for initial entry training and provides models for calculating total training workload, variable training manpower, and trainee end strength.
- The second, WN-8001-1, provides additional models to those recommended in TR-7910-2. The models address Recruit Training, One Station Unit Training, and Apprentice Training manpower requirements from a total rather than a variable perspective. Total manpower models for enlisted Initial Skill Training will be provided in a future technical report with models developed for Skill Progression and Functional Training.

The analysis was performed for the Office of the Assistant Secretary of Defense (Manpower, Reserve Affairs and Logistics) under contract MDA 903-79-C-0095. The sponsor of this work is Mr. Alvin Tucker, Director of Training and Education.

We would like to acknowledge the technical direction provided by Maj. Kenneth P. Rousseau and Mr. Michael J. Kendall of the Training and Education Directorate as well as assistance provided by other members of the OSD staff and the Military Service staffs.

EXECUTIVE SUMMARY

The purpose of this study effort was twofold:

- Provide a clear understanding of the enlisted initial entry training process; and
- Translate the training pipeline into algorithms which can be used to examine the manpower requirements in support of initial entry training.

To achieve these goals, Management Consulting & Research, Inc. (MCR) has assessed the methods used by the Services to determine their training resource requirements. In this assessment the training process was reviewed; initial entry training requirements models were examined; and, observations were made regarding similarities and differences between the Services.

The following observations summarize those contained in the report concerning the training process and initial entry training models:

- The Services all have adequate methodologies for programming and budgeting initial entry training resources. However, in no case are the factors that influence resource quantities precisely defined.
- All of the Service projections of training resources are based on predictions of increased inputs from recruitment. These projections may be optimistic in the aggregate.
- It is feasible to develop simple models for use by OSD in the determination of Service requirements for enlisted initial entry training. These models may provide special purpose assessments without complex Service data inputs.
- No Service uses the same formulas as another in the calculation of training workload. Therefore, to assure that OSD can make comparisons across Services, consistent general models with precisely defined variables are required. It is recommended, therefore, that Defense-wide models combining the best features from all Services be used to calculate Recruit Training workload and Initial Skill Training workload.

- A Defense-wide model, using the concept of fixed and variable manpower (where the variable manpower is related to the variable training unit), appears to be the most logical and consistent manner of assessing manpower resources in support of Recruit Training and One Station Unit Training. It is recommended in WN-8001-1 that a model employing this concept be used for assessing Recruit and One Station Unit Training manpower resources. This model should incorporate the concept of peak or surge capacity by calculation of peak loading. A model using the concept of variable manpower per variable training unit is also presented in TR-7910-2.
- A Defense-wide model using the concept of variable manpower per change in workload appears to be the most logical and consistent manner of assessing manpower resources in support of Initial Skill Training. It is recommended, therefore, that a model using this concept be used for Initial Skill Training manpower.
- Because of the diversity of Service training load models, we believe that the Services should be encouraged to develop a revised forecasting technique for trainee end strength. This should be based on accession programs, attrition rates, and total average time a NPS accession spends in trainee status. Pending such development, we suggest that OSD use a ratio of training load to end strength to project trainee end strength.

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I. INTRODUCTION

This technical report describes the results of a research project to investigate enlisted initial entry training and to provide an assessment of each phase of initial entry training for each Service. This section describes the following:

- Background
- Purpose/Scope of Research
- Outline for the Report

A. BACKGROUND

A project to establish a methodology and standard definitions for the marginal or variable pipeline cost of NPS male enlisted accessions was initiated in November 1978. The first part was considered to be Phase I of a study of training resource analysis. Management Consulting & Research, Inc. (MCR) has identified the precise marginal costs for the pipeline period from recruitment to arrival at first duty station as well as attrition costs of first term enlisted male personnel in Phase I.^{1/} The Phase I model, although useful as a macro approach to overall examination of enlisted accessions, does not provide a precise track to FYDP-oriented budget and POM reviews of each major training category where greater detail is needed.

B. PURPOSE/SCOPE OF RESEARCH

The purpose of this research effort, Phase II, is to translate the trained pipeline into resource models and investigate the components of these models to determine how resource requirements would be altered by changes in key variables such as course lengths, recycle rates, attrition during training, base closures, and accession flow. In

essence, the clear understanding of the initial entry training processes will assist in identifying the impact of management initiatives and alternative training strategies.

This phase of the project involved the development of a "bottom-up" methodology for each Military Service showing the relationship of staff manpower levels and training input/training workloads. To accomplish this, MCR has developed models using recognizable elements such as training companies and specified support. The assumptions and criteria used by the Services in developing training programs are described and analyzed to identify how training staff requirements are derived. Organizational and functional considerations were explored to determine the sensitivity of staff levels to differing structural patterns. The models developed have the inherent flexibility to allow corrections and adjustments to be made easily as training concepts and program variables change.

C. OUTLINE FOR THE REPORT

The remainder of the report is divided into three sections:

- II. The Training Process
- III. Initial Entry Training Models
- IV. Observations

The first section, on training process, provides a Service-by-Service discussion of requirements determination as well as functional descriptions for each category of initial entry training. Requirements determination explains what happens in the following areas:

- The decision process for training includes a chart and explanation of what happens during the preparation of the Service program for training enlisted accessions.

- Accession determination explains how the Service determines requirements for accessions in the aggregate.
- Skill determination explains how the Service determines what skills require training.
- Accession flow discusses the enlisted pipeline from entry to first duty assignment with an explanatory chart.
- Manpower in support of training deals with the instructors and other manpower who train enlisted accessions.

The functional description explains how initial entry training is conducted under the subdivisions of Recruit and Initial Skill Training. Each type of training is described in terms of the training performed and the organization that does the training. This discussion covers for both types of training, how long it is, what happens and where, general curriculum, how many people attend, staff organizations, and what varies and why.

The section on Initial Entry Training Models is divided into sections that address: training load algorithms, manpower algorithms, and trainee end strength algorithms. The following information is provided:

- The Training Load/Workload Algorithms section contains a description of existing models, an evaluation of the algorithms, and then describes which models were developed for use by OSD.
- The Manpower Algorithms section is similar to the previous section on training load algorithms with a discussion, evaluation, and description of models developed for OSD use.
- The Trainee End Strength Algorithms section, also similar to the previous sections, discusses and evaluates existing algorithms; however, no new model was developed for OSD.

The last section of the report provides observations on the training process and initial entry training models. It synthesizes the research done and summarizes the models MCR recommends for use by OSD.

The models proposed for OSD use are relatively simple. Since a high level order of accuracy is not required in their application, the simple models have the advantages of being easy to use, easy to understand, and conforming generally to the Service methodologies.

SECTION I FOOTNOTES

1/ "Marginal Pipeline Costs of Enlisted Personnel," TR-7808-1,
Management Consulting & Research, Inc., 3 December 1979.

II. THE TRAINING PROCESS

A. INTRODUCTION

This section summarizes the training process as it pertains to enlisted initial entry training. Each Service is discussed separately with a section on requirements determination (accessions, skills, the accession flow, and manpower in support of training) followed by a section on functional descriptions for the two categories of training (Recruit and Initial Skill). The intent is to provide an understanding of how each Service develops training programs and how it is organized to perform this training.

B. ARMY

1. Requirements Determination

a. Introduction

This section describes the process used by the Army to project the number of enlisted persons who must receive initial entry training each year and the manpower required to provide that training. Initial entry training includes Recruit Training (Army term is Basic Training or BT), One Station Unit Training (OSUT), and Initial Skill Training. The objective of Basic Training is to provide an orderly transition from civilian to military life for Army recruits and to teach those basic skills required of every soldier. One Station Unit Training combines Basic Training and Initial Skill Training in an integrated program, primarily in combat arms military occupational specialties (MOS). Initial Skill Training teaches specialized knowledge and skills to Basic Training graduates and certain other personnel leading to qualification in an MOS.

The Army provides Basic Training or OSUT to Active Army, Army Reserve, and Army National Guard personnel without prior military service. All Basic Training graduates go to formal Initial Skill Training. 9.4% of OSUT graduates get additional formal training before assignment to a unit, and the balance go directly to their first duty assignment.

Non-prior service accessions into the Active Army and the Reserve Components determine trainee strength and workload levels. Accession levels depend on a number of factors, the principal one being required end strength. Decisions on end strength are made within the context of the planning, programming, and budgeting (PPBS) cycle. Other PPBS decisions may be made concerning force structure, stationing, and pay and recruitment policies. These can impact directly on accessions, trainee strengths, training requirements, and training staff levels.

The Director of Manpower, Plans, and Budget within the Office of the Deputy Chief of Staff for Personnel (DCS PER) is responsible for developing end strength. Following prescribed end strength guidance, he also determines the optimum balance between unit manning levels, trainees who will undergo Initial Skill Training, and other personnel not assigned to units. DCS PER also determines the number of new personnel who must be enlisted and trained during the year to maintain the Active and Reserve force at prescribed manning levels. The National Guard Bureau prepares similar manpower programs.

The Director of Training in the Office of the Deputy Chief of Staff for Operations and Plans (DCS OPS) determines training requirements. That Directorate projects the total number of people who must be trained in each

MOS, and is responsible for training policy. He includes Requirements received from the Army Reserve, the Army National Guard, other Services, and foreign nations. Total requirements are considered in the development of the Army annual training program which is a joint effort of HQ US Army and the US Army Training and Doctrine Command (TRADOC).

The Director of Manpower, Plans and Budget is responsible for overall allocation of manpower to training activities. However, budgeting responsibility is under the DCSOPS Programs and Budget Office.

A diagram of the Army training decision process is provided as Figure II-1.

b. Accession Determination

Accession requirements for the Active Army are produced by the Active Army Military Program (subsequently referred to as the Military Manpower Program). This program is the basis for the manpower portion of the budget, for recruiting objectives, and for sizing the training base. It covers seven years - budget execution year, budget year, and five program years. It is designed to accept quantitative or qualitative limitations or assumptions pertaining to military manpower, to develop loss rates, to forecast losses and to provide the staff an optimal solution. It considers outside constraints, costs, recruiting and training base capabilities, and fill of the approved force structure. The Military Manpower Program is also used to project effects of policy changes on quantitative and qualitative aspects of manpower. It is produced for the POM, for the OSD and President's Budgets, and as required by the Army Staff. It is updated monthly to reflect the latest experience in gains, losses, and distribution of personnel. It permits early detection of deviations from programs, updating of loss

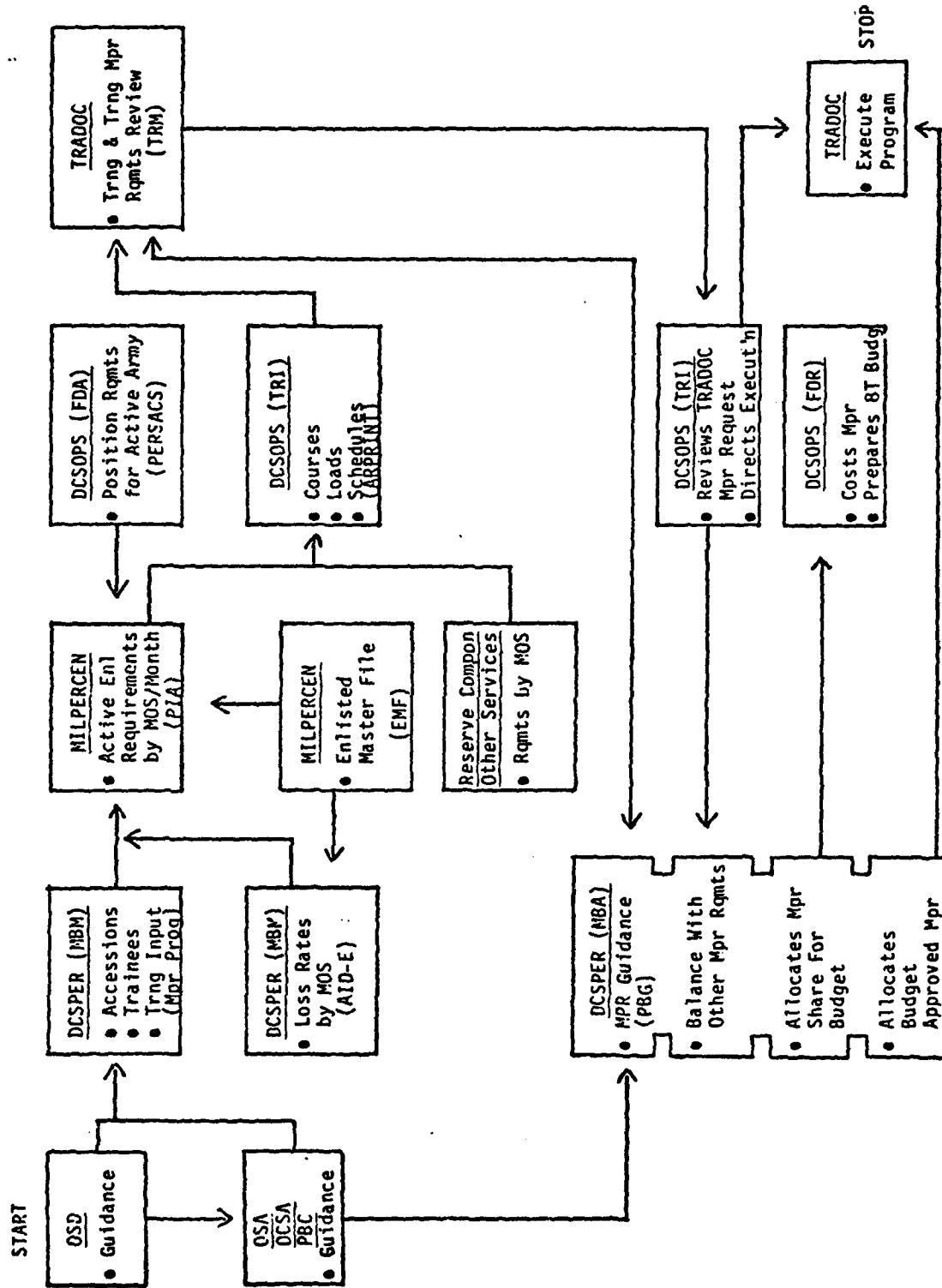


Figure II-1. ARMY TRAINING DECISION PROCESS

factors, and changes in recruiting objectives and training base input/output projections. Projected inputs to initial entry training shown in this program include the Army Reserve and National Guard. The Military Manpower Program is coordinated with virtually the entire Army staff and the Military Personnel Center.

The Military Manpower Program produces for each month of the seven years noted the following data (which is critical to production of a training program and of the training portions of the POM and budget):

- A distribution of military strength between "operating" and "non-operating" personnel - trained personnel assigned to units versus personnel in trainee, transient, holdee or student status.
- The active Army accession objectives necessary to maintain the desired levels of personnel.
- An initial training input/output schedule for Active Army and Army Reserve Forces personnel.

The Military Manpower Program produces this data through a series of interactive computer programs relying heavily on real-life information on current and recent past service members in the Enlisted Master File. Information on service status (time to expiration of term of service) and selected personal characteristics of each enlisted person which are proven indicators of retention probability (education, age, mental group, sex) are processed with other gain and loss information (reenlistments and eleven loss categories other than ETS) to produce anticipated loss rates. These rates may be modified by staff input if they are policy driven and a policy change is to be made. Loss rates are applied to corresponding portions of the personnel inventory to produce an inventory projection for each month of the current and following six years. This inventory projection is then converted to produce the accession and training input programs mentioned above.

A similiar program provides end strength, accession requirements, and training input information for the Army Reserve. Accession and training input requirements for National Guard units are compiled by the National Guard Bureau.

c. Skill Determination

The next step in the process is the translation of accessions and gross training input projections to a training requirements program based on Army needs for personnel by MOS and grade to man the structure at predetermined levels of fill. This is accomplished by the Personnel Inventory Analysis System (PIA) for Active Army enlisted personnel which is operated by the US Army Military Personnel Center. This system projects training needs by MOS up to three years by month, and for two additional years by quarters. Loss rates by MOS (developed through AIDE-E^{1/}) are applied to the current enlisted inventory. Projection of gains to individual MOS through training and reclassification, produces a projected inventory by MOS. The projected inventory of people is compared to the inventory of positions in the desired force structure factored to match operating end strength limitations. The position projection system is the Personnel Structure and Composition System (PERSACS) operated by the Force Management Directorate of DCSOPS. The system provides for the addition of allowances by MOS to cover transients, students and holdees. The result is a projection of requirements by MOS which is passed to the Individual Training Division of the Training Directorate in DCSOPS.

At this point the Army Training and Requirements System (ATTRS) comes into play. This system is a

centralized data base which maintains information on all courses of training for Army personnel (including Basic Training and OSUT). It is interactive through computer hookup with major commands where training is performed, directly with their training centers, and with USAR and NGB. It is not linked by computer with the Navy system; requirements for training Navy personnel are incorporated manually. Training requirements for the active Army developed from the PIA system are reviewed for alignment with policy and force structure to insure currency with changes which occur too late to be considered in the PIA process.

The Active Army requirements plus those for USAR, NGB, and other Services are translated into the Army Program For Individual Training (ARPRINT) which shows by course the numbers to be trained over a four year period, course frequency and capacity, lengths, desired scheduling, and anticipated attrition. The ARPRINT is produced quarterly. All requirements are reviewed in April and October and initial entry requirements are again reviewed in January and July to update the programs to account for recruiting, force structure, promotion rates, policy, retention, or other changes. Examples of ARPRINT output covering Basic, OSUT and Initial Skill Training are shown at Appendix B.

The ARPRINT is passed to the U.S. Army Training and Doctrine Command (TRADOC) and Health Services Command which develop proposed class schedules and submit changes to DCSOPS at HQ DA for review and approval. Following this review process, approved schedules are returned to TRADOC for execution and estimation of manpower requirements needed to conduct the training.

d. Accession Flow

Figure II-2 depicts the flow of Active Army NPS enlistees through the initial entry training cycle to their first duty assignment.

About 10% of enlistees are separated from the Army before they complete initial entry training. Prior service personnel are generally qualified in an MOS and bypass both Basic and Initial Skill Training.

The small number of Basic Training graduates (less than 500 per year) who go directly to units for on-the-job training (OJT) represent an insignificant percentage of trainees and accordingly are not shown on Figure II-2.

Reserve and National Guard trainees make up approximately 36% of the workload for Basic Training, 34% of OSUT and 28% of Initial Skill Training.

e. Manpower in Support of Training

Within the Army, manpower requirements for Basic Training, OSUT and Initial Skill Training are developed by the U.S. Army Training and Doctrine Command (TRADOC), and Health Services Command (HSC) which are responsible for the training.

The TRADOC process for estimating manpower is a joint TRADOC/installation-by-installation review known as TRADOC Review of Manpower (TRM). The TRM process systematically evaluates training loads and determines training manpower requirements for the budget and subsequent years. The process results in production of backup data essential to Department of the Army program and budget preparation.

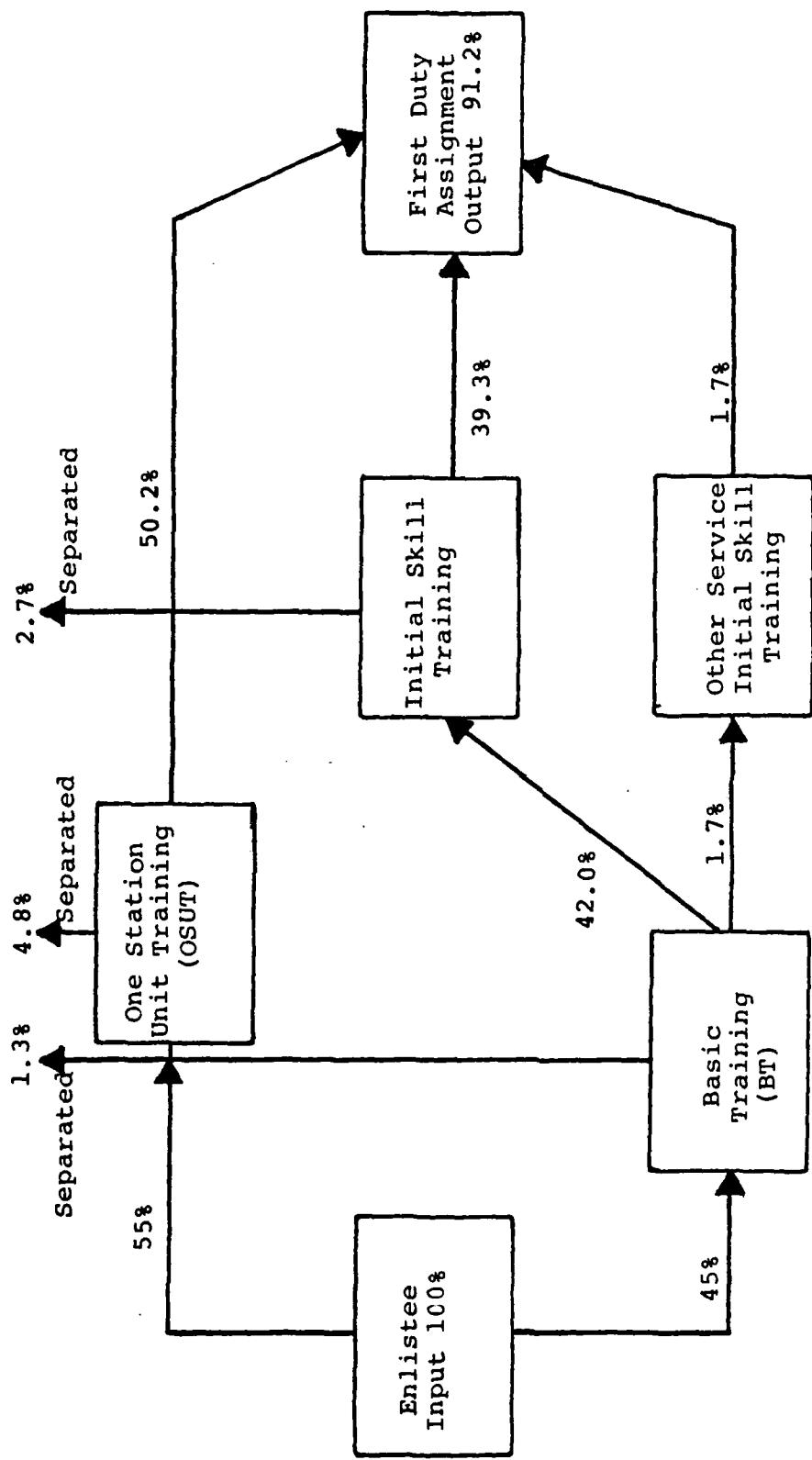


Figure II-2. FY81 ACTIVE ARMY ACCESSION DISTRIBUTION

The TRM process for a given budget year begins with the April ARPRINT. Illustratively, the April 1978 ARPRINT was the basis for preparation of the FY 1980 budget for initial entry training. Following receipt of the ARPRINT, HQ TRADOC provides installation commanders detailed guidance on projected training requirements, and instructions for submission of the TRM package to HQs TRADOC by mid-June.

During the interim period, HQ TRADOC analyzes ARPRINT schedules and workloads, and estimates gross manpower requirements for the budget years, including indirect as well as direct support of training. For Basic Training and One Station Unit Training, manpower estimates are developed by structural analysis, e.g., the number of companies required to train the projected workload. For other than Recruit Training, TRADOC uses a series of manpower estimating relationships (MERs) which are based on staffing guides, analysis of historical manpower, and workload performance data. This early estimate of manpower requirements is compared with TRADOC capabilities and anticipated manpower resources for the budget year which has been separately provided by HQ DA in the May Program Budget Guidance. At this point TRADOC provides a basis for dialogue and negotiation with HQ DA on workloads and manpower. Serious disconnects are surfaced and action can be started toward balancing workloads and support resources early in the budget process.

Each TRADOC installation conducts its own review in considerably greater depth using yardsticks, staffing guides, and engineered standards to determine requirements. Review is made on a course-by-course basis considering factors unique to that installation such as facilities, weather, location, and actual experience.

Where these indicate a deviation from the "standard," detailed justification must be provided.

Each installation review and requirement TRM package is then jointly reviewed at HQ TRADOC by both installation and HQ TRADOC staffs between mid-June and mid-July, workloads and manpower requirements are agreed upon, and manpower allocations made to each installation. Installations then prepare revisions to personnel manning documents (TDA) for submission to TRADOC in August and to HQ DA by the end of September. These TDA are the basis for assignment of trained instructors and other personnel during the budget year.

At the conclusion of the TRM review TRADOC refines its previous estimates of capability and provides data to HQ DA for final adjustments of training missions and resources.

The TRM process is repeated annually; the April 1979 ARPRINT was the basis not only for FY1981 requirements, but also to refine FY 1980 requirements. The long lead time involved in programming and budgeting for the future and even more importantly in getting trained personnel in place to provide training is well illustrated by the process just described.

TRADOC submits its requirements for manpower to HQ DA, Training Division (DCSOPS) for consideration in preparation of the POM and the budget. Only gross deviations from previously programmed levels can be examined. Accordingly, there is almost complete dependency on the integrity of the TRADOC TRM process described above. The manpower requirements are passed to the Allocation and Documentation Division in the Directorate of Manpower, Plans and Budget in DCSPER. That office attempts to satisfy TRADOC requirements for training manpower and those of other commands

and activities within end-strength limitations. The level of manpower finally allocated to training activities is a function of its priority level established as a result of staff interaction through the Army Program Budget Committee. Following approval of the proposed allocation of manpower for training by the office of the Chief of Staff, the Program 8T OMA team of DCSOPS prepares the POM and Budget details for submission to OSD.

2. Functional Descriptions

a. Introduction

Initial entry training in the Army includes all formal training leading to the award, at apprentice level, of an Army Military Occupational Specialty (MOS). Training is in two phases; training in basic military skills common to all soldiers, and training in a specialty. This training is given to all Active Army enlistees, and to members of Reserve and National Guard units who have not had prior military service.

The Army term for Recruit Training is Basic Training or BT. The Army also trains new recruits in combined basic and specialty courses under a One Station Unit Training (OSUT) concept which will be discussed below. Both Basic Training and OSUT may be given at the same station. OSUT is designed primarily for training combat arms soldiers in basic (common) and specialized skills in one unit under one cadre. Basic Training is primarily given to those trainees who will require training in specialized skills which is more successfully taught in a school environment. Basic Training is conducted at six military installations, OSUT at eight. At four of the installations, both modes of training are conducted.

Initial Skill Training is given to all BT graduates with the exception of a small number who are assigned to units for on-the-job training. In addition, the Army retrains some personnel from operating units who hold MOS found excess to Army needs and must be trained in another career field. Also, the Army provides Initial Skill Training to personnel from other Services, foreign students and civilian employees. Army data systems provide detail which breaks out Initial Skill Training workloads from data pertaining to Skill Progression Training. However, manpower in support of Initial Skill Training data is not separately identified.

b. Recruit and One Station Unit Training

(1) Training

The Army trains men and women in integrated companies in two modes, Basic Training/Advanced Individual Training (AIT) and One Station Unit Training as portrayed in Figure II-2. They will be discussed together in this section.

In the Basic Training/AIT mode, trainees receive basic combat skill training (as do OSUT trainees) but then go on to skill training in other organizations.

In the OSUT mode, a trainee receives training in basic combat skills and Initial Skill Training in the same unit. Included under OSUT are relatively small numbers of trainees who receive combined Basic and Initial Skill Training at two stations: Phase I, 7 weeks at Ft. Knox, Phase II, 6 weeks at Ft. Benning. This continues a Congressionally mandated test, which the Army hopes to dis-

continue. No definitive test results are available. The "two station" training mode is interrupted after the seventh week by several travel days between stations. In FY 1981 the Army plans to train about 55% of enlistees in the OSUT mode, and 45% in the Basic Training/AIT mode.

The normal training time for an enlistee from the time of entry into training until qualification in a military occupational specialty is 92 days for OSUT and 116 days for Basic Training and Initial Skill Training. A small percentage of soldiers go on to more advanced Initial Skill Training from OSUT. While OSUT consumes fewer training days than BT and Initial Skill Training combined, the 55/45 percent split represents the optimum envisioned by Army training planners given the present composition of Active Army and Reserve Forces, and MOS requirements.

Input to Basic Training and One Station Unit Training closely follows recruitment patterns. More men and women tend to enlist in the months following close of the school year than in other months. Almost 50% of Active Army enlistees therefore enter training during June, July, August and September. The flow of reservists tends to follow the same pattern although the impact of reservist seasonality is relatively minor. Since the training base cannot be sized for peak loads nor geared to the months of lowest input, some unevenness of utilization results, and can be anticipated. Normal capacity of training companies is 200 trainees. On this basis the Army anticipates that the Basic and OSUT training plant will be utilized at about 140% of normal capacity during the FY 1980 peak months and at about 125% during the FY 1981 peak.

Monthly Active Army NPS accessions as projected for the FY 1981 budget estimate are shown at

Table II-1. In FY 1979, accessions (and input to Basic Training and OSUT) varied from a low of 4300 in December to 17,298 in August. For FY 1980, they range from 8,500 to 19,000 and in FY 1981 from 5,600 to 17,300. These swings, dictated by the availability of recruits, illustrates the difficulty of staffing for "average" load. Staffing and class scheduling must be programmed to meet peak demand. For the most part, occasional peaks can be accommodated. However, sustained high levels of input such as are expected in FY 1980 will require extraordinary measures to provide effective training without additional permanently assigned training personnel.

Of those to enter initial training in FY 1981, 57% will be Active Army non-prior service (NPS) males, 11% NPS females and 32% USAR and National Guard reservists. Basic Training and OSUT are not given to prior service personnel or to personnel of other Services or foreign nations.

Some trainees who begin training fall behind their contemporaries and must be "recycled" to successfully complete their initial entry training. The Army provides a 7% factor in its load computations for recycles. This factor is applicable to both Basic Training/AIT and to OSUT. These recycles succeed or become losses to the Army during initial training at about the same rate as other personnel. Course attrition rates (reflecting trainees who are recycled, retrained, or are separated from the Army) during the initial training period as projected for FY 1981 are shown below in Table II-2:

Table II-1. MONTHLY NPS ACTIVE ENLISTED ACCESSIONS

	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>
OCT.	9375	8476	15300	10400
NOV.	9523	7583	15500	10100
DEC.	4839	4300	8500	5600
JAN.	10342	10695	16500	12300
FEB.	8981	8799	13100	11000
MAR.	7861	7263	12800	11200
APR.	5871	8892	10100	8900
MAY	7164	9928	10900	9500
JUNE	16578	15895	19000	17300
JUL.	14077	16596	15800	13600
AUG.	14873	17298	15800	13400
SEPT.	14545	13696	16500	14200
TOTAL	124029	129421	169800	137500

Table II-2. COURSE ATTRITION RATES
(Percentage)

	<u>BASIC TRAINING</u>	<u>ONE STATION UNIT TRAINING</u>
	<u>49 Days</u>	<u>92 Days (Avg. Weighted)</u>
Active Army	9.1	15.0
Reserve Components		
USAR	8.2	11.9
ARNG	<u>8.2</u>	<u>11.2</u>
Weighted Rate	8.9	14.8

Course attrition rates are based on FY 1978 experience, adjusted for the course and trainee input mix programmed for FY 1981. Basic Training and OSUT loads for FY 1981 will be computed using these attrition factors.

Illustrative display of Basic Training inputs, outputs and loads for FYs 1979, 1980, and 1981 follow in Table II-3:

Table II-3. BASIC TRAINING
(in Thousands)

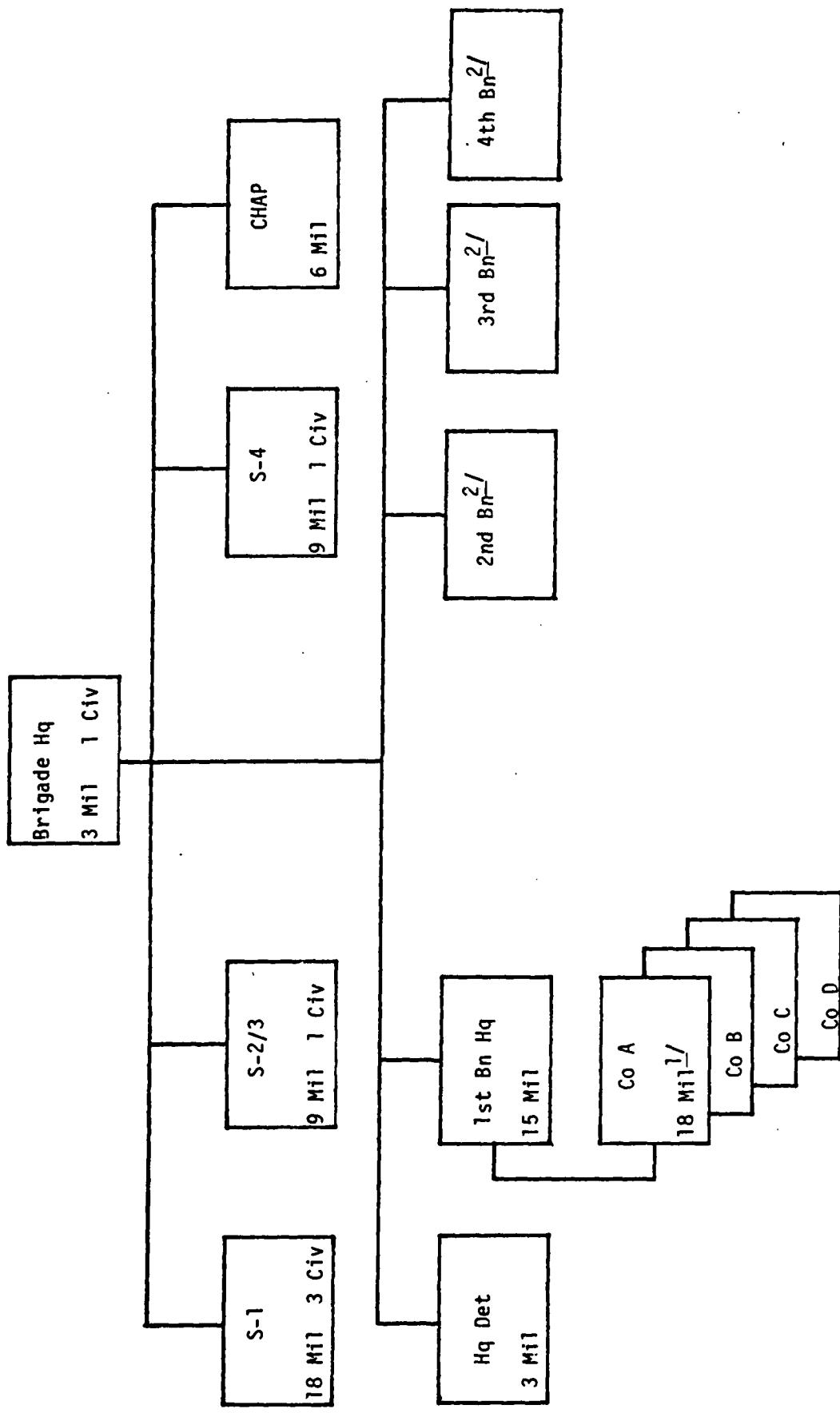
	<u>Estimated FY79</u>			<u>Estimated FY80</u>			<u>Estimated FY81</u>		
	<u>ENTRS</u>	<u>GRADS</u>	<u>LOADS</u>	<u>ENTRS</u>	<u>GRADS</u>	<u>LOADS</u>	<u>ENTRS</u>	<u>GRADS</u>	<u>LOADS</u>
Active	62.9	57.3	8.4	87.1	79.4	11.7	68.2	62.0	9.1
Reserve	11.6	10.9	1.4	16.8	15.7	2.1	16.8	15.5	2.2
National Guard	20.1	18.4	2.7	19.7	18.0	2.6	20.7	18.8	2.8
*TOTALS	94.6	86.6	12.5	123.7	113.0	16.4	105.8	96.4	14.1

*Totals may not add due to rounding.

(2) Organization

A sample structure for Basic Training is illustrated in Figure II-3. Length of training is seven weeks. Each company can train up to 220 trainees under surge conditions. However, structure is based on a level of 200. As the program dictates, a brigade may be structured with three to five battalions, and each battalion with three to five companies. Under optimum conditions each company is in training status for seven weeks followed by two weeks for maintenance and fill before the next training period commences. In this illustration, the brigade has a surge capacity of 3520 (16 companies x 220). The authorized staff chargeable to the Recruit Training account (PE84711) is 403; 58 officers, 338 enlisted and 7 civilians. Of these, 192 enlisted are identified as drill sergeants. This structure is typical of those found at the 5 centers which conduct Basic Training in the Army.

A sample structure for OSUT is illustrated in Figure II-4. Length of training in this mode ranges from 12 to 18 weeks depending on the MOS to be attained. Each company can accommodate up to 220 trainees. Like Basic Training, 200 is the base on which a unit is structured. Battalions, and companies per battalion can be added or deleted to match programmed loads. While this illustration is typical of OSUT organizations, the size and composition of the Training Committee Group will vary to meet demands of training for each MOS. This illustration (engineer training) indicates that the brigade as currently organized has a surge capacity of 3080 (14 companies x 220). The authorized staff chargeable to the One Station Unit Training account is 472; 58 officers, 402 enlisted and 17 civilians. Of these 229 are identified as instructors or drill sergeants. OSUT is conducted at 8 stations.

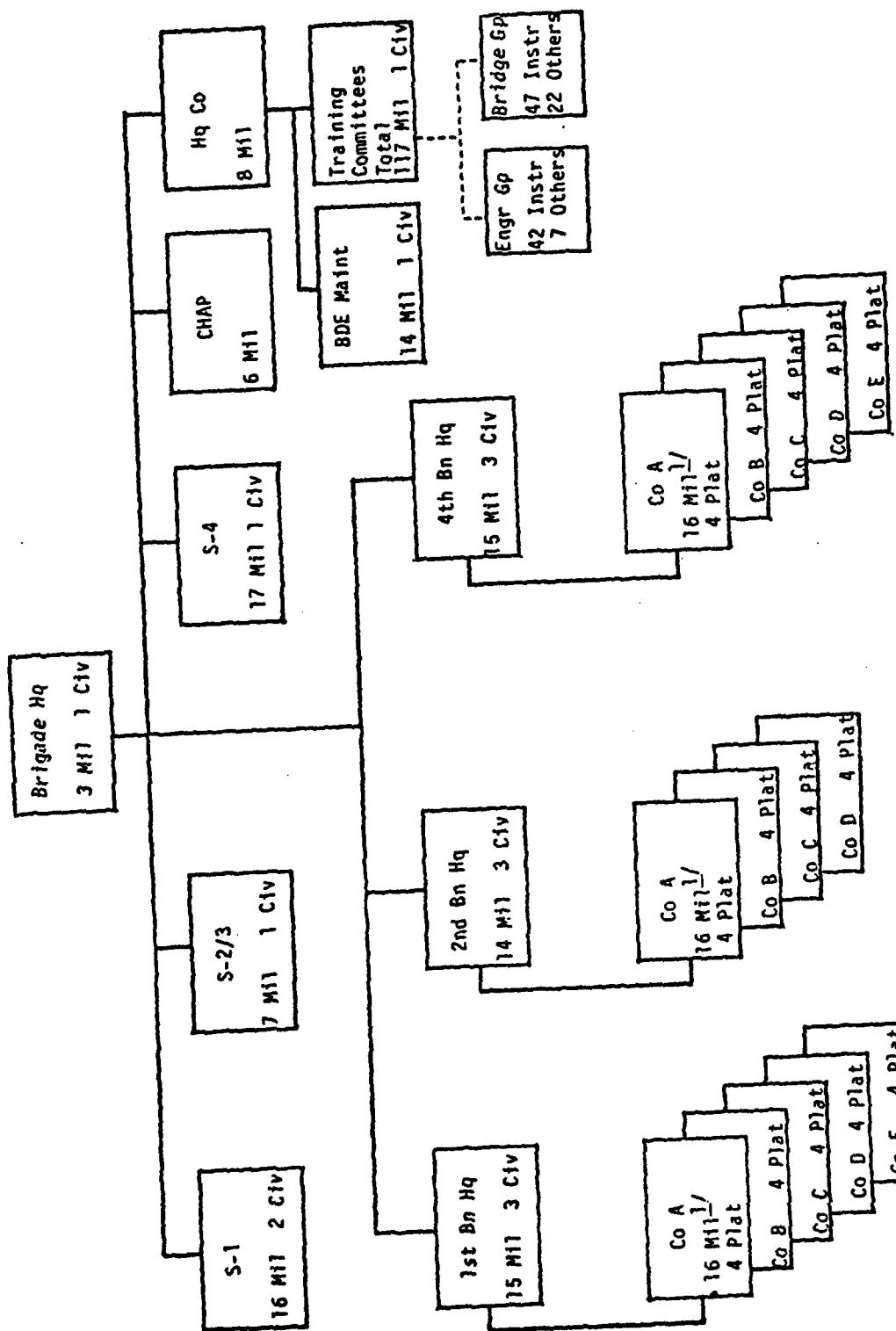


II-19

1/ 12 Drill Sergeants; 6 others per company.

2/ All Bns identically organized and staffed.

Figure II-3. BASIC TRAINING STRUCTURE



1/ 10 Dr Mil Sergeants; 6 others per company.

Figure II-4. ONE STATION UNIT TRAINING STRUCTURE

c. Initial Skill Training

(1) Training

Army Initial Skill Training is conducted at nine Army Training Centers and 15 schools under command of TRADOC with medical skills trained by the Health Services Command. Courses may start on any training day. The number of trainees in each course varies with the nature of the instruction, and the numbers to be trained over the year. Courses also vary in length from a few weeks to many months. The average weighted course length for all initial skill courses, including medical, is 9.52 weeks. This is actual elapsed calendar days which include intervening non-training days. It does not include waiting time which, because of scheduling, is not considered a significant factor by the Army.

The heaviest student load for combat service support skills is carried at Fort Jackson, South Carolina. The Quartermaster School at Fort Lee, Virginia, trains the largest number in technical skills. Table II-4, on the following page, shows the loads projected for each of these facilities for FY 1981.

Input to Initial Skill Training courses conducted at Army Training Centers and Schools comes primarily from Recruit Training output of U.S. Army, National Guard, and U.S. Army Reserve trainees. A small number of other Active Army personnel who are being trained in an additional MOS, personnel of other Services, civilians, and foreign students make up the balance. Table II-5 shows inputs by category of personnel for FY 1979, FY 1980, and FY 1981 for Program 8T Initial Skill Training. The impact of seasonality on Initial Skill Training is not believed to be significant due to dispersion of trainees to many courses.

Table II-4. INITIAL SKILL TRAINING LOADS
 TRADOC SCHOOLS AND TRAINING CENTERS
 FY81 BUDGET ESTIMATE

<u>PE 84731</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>
<u>Schools</u>			
Army Aviation	714	826	654
Engineer	117	121	121
Field Artillery	935	816	854
Ordnance and Chemical	1,718	2,214	1,999
Missile and Munitions	812	885	762
Quartermaster	3,107	3,505	3,505
Signal	2,566	2,803	2,326
Institute of Administration	851	1,221	912
Chaplain	51	74	50
Armor	839	1,074	984
Defense Information	146	190	188
Air Defense	523	718	660
Transportation	1,030	1,140	1,069
<u>Training Centers</u>			
Ft. Dix, NJ	10	17	17
Ft. Knox, KY	81	76	77
Ft. Jackson, SC	2,960	3,340	3,014
Ft. Leonard Wood, MO	1,460	1,595	1,548
Ft. Benning, GA	51	--	14
Ft. Sill, OK	--	12	13
Ft. Bliss, TX	612	637	594
Ft. Gordon, GA	24	22	32
Ft. McClellan, AL	<u>135</u>	<u>235</u>	<u>250</u>
<u>TOTAL</u> ^{1/}	18,742	21,521	19,450
<u>PE 84733</u>			
Intelligence School (Ft. Huachuca)	281	698	458
<u>PE 84734</u>			
Intelligence School (Ft. Devens)	<u>886</u>	<u>923</u>	<u>576</u>
<u>GRAND TOTAL</u> ^{1/}	19,909	23,142	20,484

1/ Totals may not add due to rounding.

Table II-5.
 INITIAL SKILL TRAINING INPUTS, OUTPUTS, AND LOADS
 (PEs 84731, 84733, 84734)
 FY81 Budget Estimate

	FY79			FY80			FY81		
	INPUT	OUTPUT	LOAD	INPUT	OUTPUT	LOAD	INPUT	OUTPUT	LOAD
ACTIVE ARMY									
Active Army Trainees	73,958	63,169	14,121	87,804	75,397	16,670	73,048	63,043	13,612
Active Army Students	420	418	30	803	801	134	442	441	77
RESERVE COMPONENTS									
Army National Guard	20,076	17,522	3,540	19,500	16,979	3,476	20,934	18,225	3,657
US Army Reserve	5,761	5,099	960	10,137	8,945	1,646	11,524	10,157	1,881
OTHERS TOTAL	5,337	4,341	1,258	5,360	4,476	1,216	5,372	4,333	1,257
Other Service	(4,305)	(3,513)	(911)	(4,105)	(3,446)	(815)	(4,130)	(3,312)	(861)
Civilians	(130)	(109)	(46)	(113)	(97)	(39)	(105)	(91)	(35)
Foreign Students	(902)	(719)	(300)	(1,142)	(933)	(363)	(1,137)	(930)	(361)
TOTALS	105,552	90,549	19,909	123,604	106,598	23,142	111,320	96,199	20,484

About 500 Army Recruit Training graduates earn their MOS by on-the-job training each year. In addition, 1,927 trainees will receive Initial Skill Training by the Navy and Air Force and 565 by the Defense Mapping School in FY 1981.

The relatively high input for FY 1980 as compared to FY 1979 is related to the FY 1980 accession program which has been increased to make up for an end strength shortfall in FY 1979.

For FY 1981 the Army projects a total output of 96,199 personnel from Initial Skill Training in program 8T (PEs 84731, 84733, and 84734). These were shown by category of personnel on Table II-5.

During FY 1981, 77,013 Active Army trainees will complete Initial Skill Training conducted in Army Schools and Training Centers, by the Defense Mapping School, through on-the-job training, and by other Services. The distribution of Active Army trainee output by training source is shown below. Inputs are shown for comparison. These soldiers are available for immediate assignment to Active Army units or for further functional training to broaden their qualifications within their MOS. About 14,500 will receive further functional training in FY 1981, following which they will be assigned to units.

Table II-6. FY81 OUTPUTS/INPUTS
(Active Army Trainees)

	<u>Outputs</u>	<u>Inputs</u>
General Skill Training	60,632	70,220
General Intelligence Skill Training	1,406	1,496
Crypto/SIGNINT Related Skill Training	1,005	1,332
Health Care Training	11,111	11,916
Defense Mapping School	565	565
On-The-Job Training	501	501
Other Service Training	<u>1,793</u>	<u>1,827</u>
TOTAL	77,013	87,857

The following table shows the distribution of Initial Skill Training graduates to functional training by school.

Table II-7. FUNCTIONAL TRAINING FOR INITIAL SKILL GRADUATES, FY81

Field Artillery School	307
Infantry School (Airborne Training)	9,673
Missile and Munitions School	49
Quartermaster School	59
Signal School	1,224
Institute of Administration	197
Institute for Military Assistance	482
Army Training Center, Ft. Gordon (International Morse Code)	1,561
Intelligence School, Ft. Devens	<u>919</u>
TOTAL	14,471

(2) Organization

As noted above, Initial Skill Training is conducted at 15 schools and 9 training centers. While Army Training Centers and Schools all possess the same organizational elements necessary to conduct skill training, the precise organization will vary with the unique nature and responsibilities of each. Sample organizational charts for the Quartermaster School and for the Army Training Centers at Fort Jackson and Fort Leonard Wood are shown at Appendix B. Fort Leonard Wood conducts courses of greater complexity and length than Fort Jackson. The training brigade at Fort Leonard Wood is backed up by a separate training group which supports Recruit Training as well as Initial Skill Training.

In addition the same brigade headquarters overseeing Initial Skill Training commands two battalions of One Station Unit Training. In the case of Fort Jackson, a separate brigade is organized for Initial Skill Training only.

C. AIR FORCE

1. Requirements Determination

a. Introduction

This section describes the process used by the Air Force to project the number of enlisted persons who must receive initial entry training each year and the manpower required to provide that training. Initial entry training includes both Recruit Training and Initial Skill Training. The objective of these consecutive blocks of training is to provide an orderly transition from civilian to military life for Air Force recruits, and to develop basic military and specialized skills requisite to initial duty in units of the Active Air Force and those of its Reserve Components.

The Air Force provides Recruit Training (Air Force term is Basic Military Training or BMT) to Active Air Force recruits who have not had prior military service (NPS) and to NPS Air Force Reserve and National Guard personnel. Approximately 91% of BMT graduates go on to Initial Skill Training. The balance are assigned directly to units for on-the-job training. A small number may possess civilian acquired skills which permit their assignment to units without further training after BMT.

The primary determinants of trainee strength for any year are the decisions on total Active, Reserve and National Guard force levels. These decisions are made within the context of the planning, programming, and budgeting (PPBS) cycle. Other PPBS decisions may be made

pertaining to Air Force structure, stationing, and man-years which impact on accessions, trainee strengths, training requirements and training staff levels.

The Air Force Director of Manpower and Organization within the Office of the Deputy Chief of Staff, Manpower and Personnel (AFMP) determines, within the prescribed end strength, the optimum balance between unit manning levels, personnel undergoing initial entry training, and other trained personnel not assigned to units.

The Air Force Director of Personnel Programs in AFMP projects the number of new personnel who must be enlisted and trained during the year to maintain the force at prescribed manning levels and provide for other trained personnel not assigned to units. Similar determinations are made separately by the Air Force Reserve and Air National Guard.

All non-prior service personnel undergo a six week course of Basic Military Training. Further training in specialized skills is required of most BMT graduates to qualify them in an Air Force Specialty code (AFSC) required for successful performance in a unit. The Director of Personnel Programs is responsible for projecting the number of personnel who must be trained in each specialty to meet these needs. This Directorate receives similar requirements from the Air Force Reserve and Air National Guard and from other Services. These requirements are considered in the development of the Air Force annual training program which is a joint effort of HQ USAF and the Air Training Command.

The Director of Manpower and Organization determines the changes in training manpower appropriate to changes in workload for BMT and Initial Skill Training. A diagram of the Air Force training decision process is provided as Figure II-5.

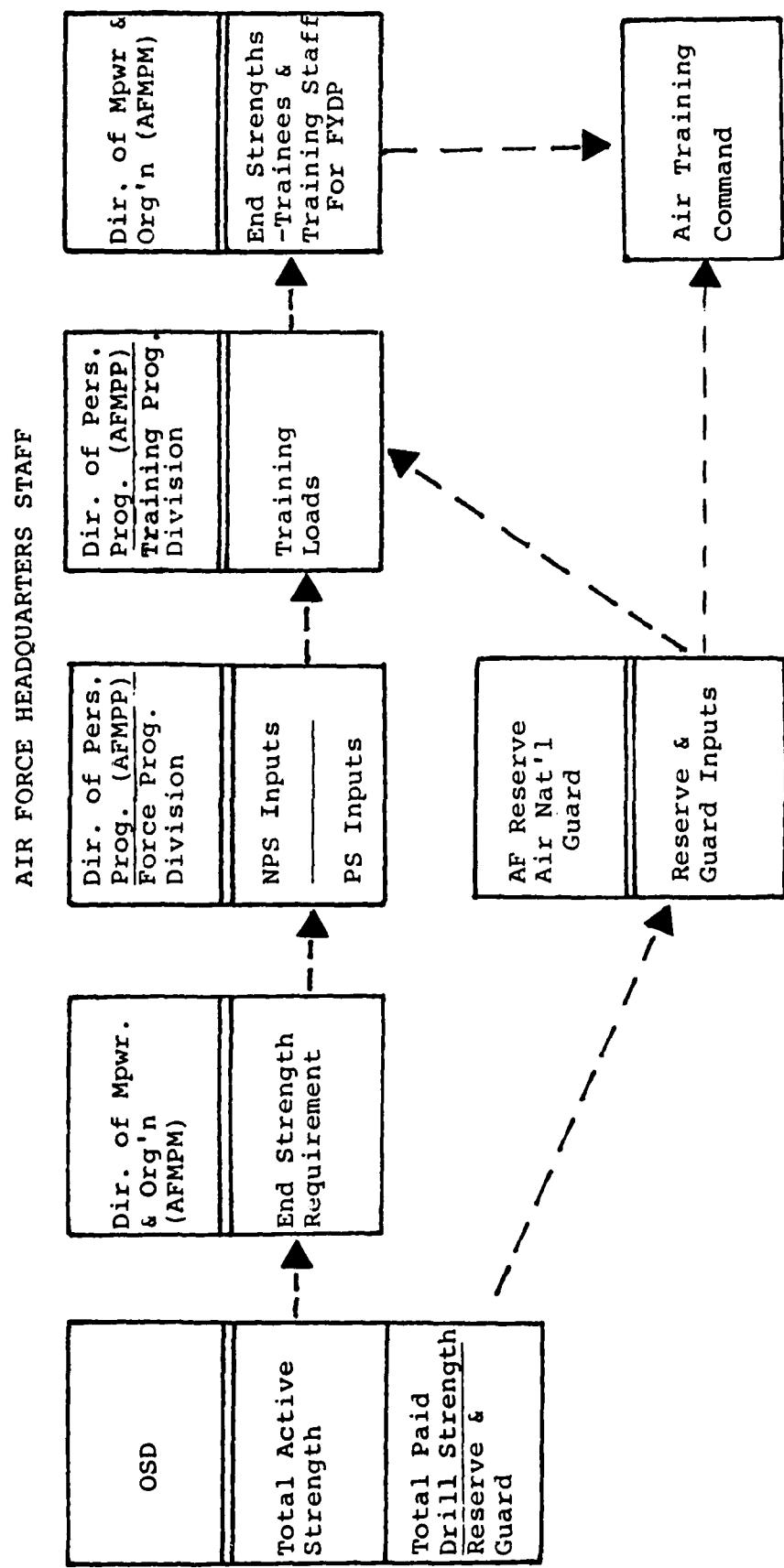


Figure II-5. AIR FORCE TRAINING DECISION PROCESS

b. Accession Determination

Accession requirements for Air Force enlisted personnel are derived for each fiscal year by taking the beginning strength, subtracting anticipated losses, (including those which will occur during initial entry training) and deducting the net sum from the approved end strength. Loss projections, which are critical to this process, are developed using a dynamic predictive computerized model which assimilates data from several subsystems. The output product may be modified for any anticipated changes in recruitment mix or retention policy.

The basic subsystem is the Airman Loss Probability System (ALPS) which develops loss rates by category of personnel for a twelve month period. Actual loss data on individuals based on recent experience is continuously fed into this system to keep rates as current as feasible. These rates are applied to the current inventory by a subsystem titled "Dynamic Model" which ages the current airman inventory to provide out-year loss projections.

Procurement objectives for each fiscal year are then developed by category: male/female, prior service/non-prior service, high school graduate/non-high graduate. Also taken into consideration are the recruiting market, recruiting capabilities and any pertinent personnel policies. Should changes in accession mix be of sufficient magnitude to affect projected losses, appropriate adjustments are made in the accession targets. Adjustments also may be made to compensate for prior period recruiting shortfalls.

c. Skill Determination

The Air Force system for determining the number of persons who must be trained in each skill is a complicated program combining interactive computer programs and intensive

management reviews. The process combines a detailed statement by Air Force Specialty Code (AFSC) of projected training requirements produced at Headquarters, USAF with a training program to support those requirements produced jointly by HQ USAF and the Air Training Command (ATC) through the Training Flow Management Committee comprised of representatives of both organizations. The process is iterative, and both the requirements and the training plan are updated three times a year to coincide with POM and budget submissions. The skill requirements and the plan are projected to the end of three fiscal years: the current year plus two subsequent fiscal years.

The projection of skill requirements is published in a document entitled "Airman Trained Personnel Requirements" or TPR. The automated system which produces this document is called the Airman Skill Force System (ASKIF). This system assimilates data from other automated systems, accomodating force structure requirements, transient entitlements, program adjustments, personnel information on active airmen, loss rates by specialty code, year group and grade, and historical data on retraining. The TPR provides the base for the training production program.

The TPR process begins with the building of the authorization base which combines the output of two computerized feeder systems, the Command Manpower Data Base (CMDB) and the Transient Enlistments Distribution System (TEDS). The CMDB projects manpower authorizations by major command, Air Force Specialty Code (AFSC), skill level, and grade for each permanent party military position in the approved force. The TEDS forecasts the transient authorization by AFSC. The results are added to the CMDB forecast to obtain total authorizations by AFSC. These projected authorizations are

reviewed and validated by the Air Staff to insure that they reflect the latest changes in force structure, accurately portray current and future AFSC conversions, and provide a proper CONUS-Overseas balance.

A separate operation within the ASKIF model projects end strength by AFSC through the process of aging the current active airman inventory, as reflected in personnel files. The model computes losses from this inventory using a combination of standard loss rates, projection of near term losses derived from a Transaction Reporting and Control System (TRAC), losses to lateral AFSCs (and offsetting gains), and losses which will occur through retraining from surplus AFSCs.

The ASKIF model then compares the projected end strength for each AFSC to the projected authorization to show the amount of training required to keep an AFSC at 100% of position and transient requirements. The TPR summary products are checked to insure that fiscal or other constraints have not been exceeded. The TPR detail is then manually reviewed, analyzed, and revised as needed. The final TPR is distributed to the Air Training Command and the Air Staff for comparison with the training program and to identify issues to be resolved at the Training Flow Management Conference.

Following the production of the TPR, (three times a year) an Airman Training Flow Management Conference is held to consider and resolve all issues involving the filling of training needs. The conference is co-chaired by Air Training Command and HQ USAF representatives. It has representation from all agencies involved in planning training programs, program execution, personnel recruitment, assignment and management, and those major commands who are sole users of particular AFSCs.

The conference achieves agreement between participant agencies on recruiting objectives, training capacities, course schedules, instructor manning levels, student (trainee) mix (among prior service, non-prior service, and retrainees), and all other issues pertinent to planning and execution of the training program.

Following each conference, and based on decisions reached, the Air Training Command produces a training plan covering the current year (updated), the budget year, and the first program year. The plan is called "USAF Airman Programmed Technical Training," or PTT. The document is primarily designed to indicate the number of airmen by AFSC who are programmed to enter and graduate from ATC managed technical training courses. The outputs, or graduates, reflect the total requirements detailed in the TPR, as modified by those who may go directly to units from Basic Military Training by virtue of civilian acquired skills, or for on-the-job training (OJT). The number of student entries programmed (inputs) is the number of outputs adjusted to compensate for predicted losses. Loss rates are calculated individually for each course and based on actual data during the preceding 12 months with quarterly adjustments made when necessary.

Each course has specific scheduling parameters that include minimum/normal/maximum group size, course length, and maximum allowable number of groups. Fluctuations in course entry schedules are minimized as much as possible to preclude variations in instructor authorizations. The length of time necessary to acquire a new instructor and qualify him to teach is a major constraint in achieving increased production in many AFSCs. The detail for each course specifies inputs and outputs for each category of trainee (Active Air Force, Reserve, National Guard, other Services).

The updating of the requirements and the training execution plan three times each year provides the information necessary to adjust as quickly as possible to changes. These include changes in requirements, recruiting shortfalls, or for other reasons not anticipated in the planning process. The combination of computerized data, staff reviews, "corporate" resolution of issues, and frequent updates enhances the confidence of the Air Force in the system for planning and programming initial entry training and the data derived from it.

d. The Accession Flow

Figure II-6 depicts the flow of Active NPS Air Force enlistees through the initial entry training cycle to their first duty assignment. Approximately 12.8% of enlistees are separated from the Air Force before they complete initial entry training. About one-half of prior service enlistees bypass both Recruit Training and Initial Skill Training and are sent directly to units for on-the-job training. They have previously acquired skills which qualify them for an Air Force duty assignment with little or no further orientation or training.

All enlistees without prior service go through Recruit Training. On completion about 7.8% are assigned directly to units for on-the-job training. A few (0.2%) have civilian acquired skills which qualify them for immediate assignment without further training.

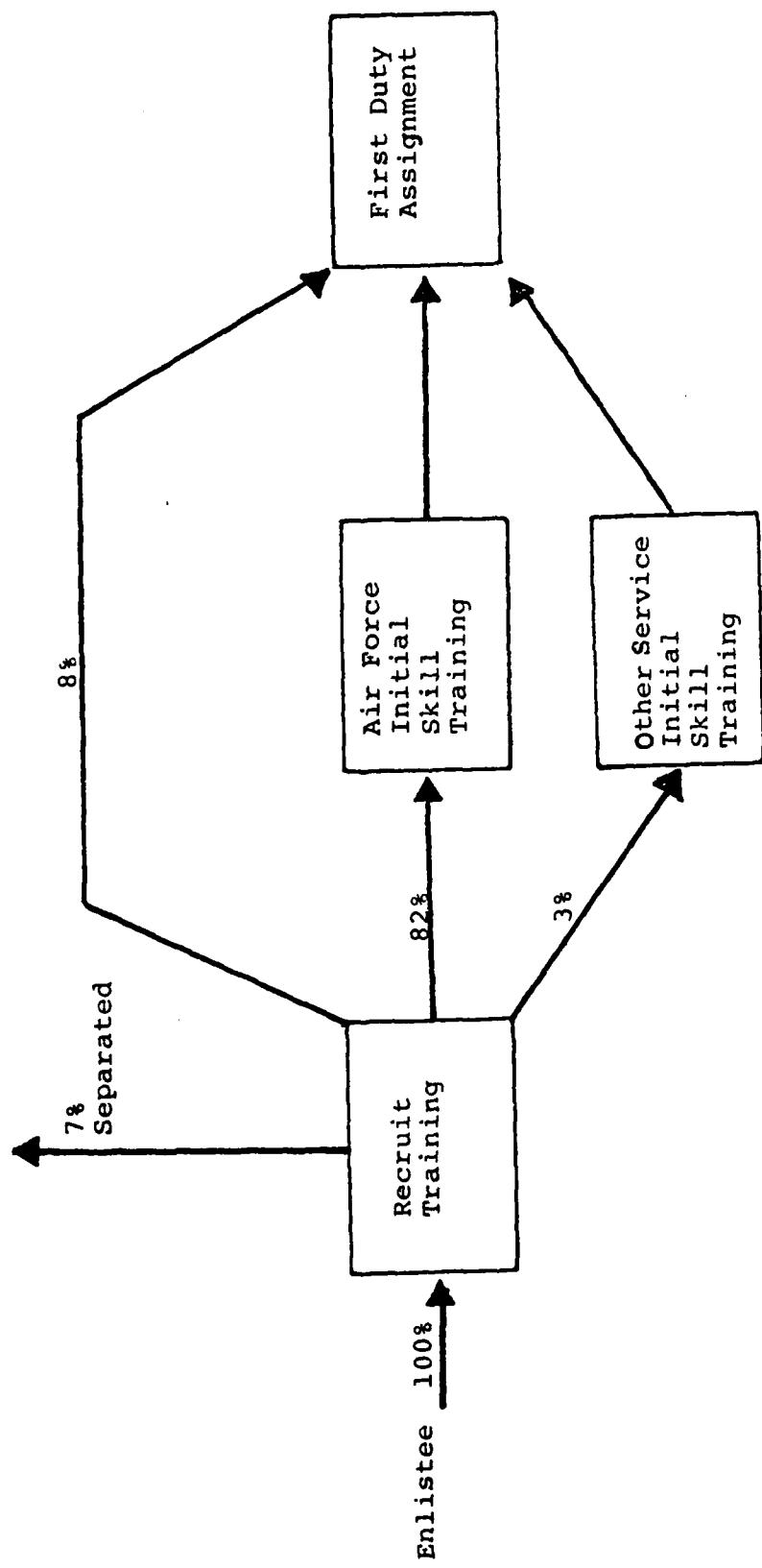


Figure II-6. FY81 AIR FORCE ACCESSION DISTRIBUTION

Reserve and National Guard personnel make up almost 10% of the total Air Force workload for Recruit Training, and just over 15% of the Initial Skill Training workload.

e. Manpower in Support of Training

The Air Force determines its manpower requirements by applying engineered manpower standards expressed in manhours for each workload unit. Standards are extremely detailed. They have been developed over a number of years and are subject to a continuous refinement and updating program. These standards are used for actual manpower distribution and assignment, but not for programming and budgeting.

For programming purposes, macro-factors have been developed for projecting changes in manpower requirements related to changes in workload. Separate factors have been developed by the Air Training Command for Recruit Training and for Initial Skill Training. They consider the variable to be instructors, with the base relatively fixed. A more detailed discussion and portrayal of these factors will be found in Section III.B. of this report.

The factors are used at HQ USAF for budget and program preparation and to make gross changes in manpower allocations to subordinate training agencies. They provide adequate approximations for these purposes and provide a useful tool to make quick adjustments for changes in force structure, end strength, or manpower policies.

2. Functional Descriptions

a. Introduction

Initial entry training in the Air Force includes all formal training leading to the award, at apprentice level, of an Air Force Specialty Code. Training is in two phases: Recruit Training, which is given to all non-prior service personnel immediately following their enlistment, and Initial Skill Training which is given to most Recruit Training graduates, and to about half of the enlistees who have had prior service.

The Air Force term for Recruit Training is Basic Military Training or BMT. The primary objective of BMT is to provide an orderly transition from civilian to military life and to provide basic military skills and knowledge requisite to initial duty in the Air Force. Air Force Recruit Training, conducted at Lackland Air Force Base, San Antonio, Texas is provided for Air Force Reserve and National Guard personnel as well as active duty trainees.

Formal Initial Skill Training is given to approximately 91% of BMT graduates, about half of prior service enlistees and to Reserve and National Guard personnel. In addition, the Air Force retrains personnel from operating units in new AFSCs, the majority of whom hold AFSCs surplus to Air Force needs, and some personnel from other Services or other countries.

The internal Air Force data system provides detail which breaks out Initial Skill Training and workloads from data pertaining to Skill Progression which is also charged to the same program elements. Only in PE 84731 (General Skill Training) is an attempt made to distinguish instructors and other staff devoted to Initial Skill Training from manpower involved with Skill Progression Training.

b. Recruit Training (USAF Term: Basic Military Training or BMT)

(1) Training

The Air Force conducts its Recruit Training at the Basic Military Training School, Lackland Air Force Base, Texas. Courses start on any training day as soon as a flight is formed. A flight is made up of 45-50 trainees. The training course is approximately six weeks which includes 32 training days.

For program and budget calculations, the Air Force has refined course length to be 6.19 weeks, or 43.33 days by the following computation:

$$\begin{aligned} & 365 \text{ days per year} - 104 \text{ weekend days} \\ & - 9 \text{ holidays} \div 5 \text{ training days per week} = 50.4 \text{ "academic weeks"} \\ & \frac{52 \text{ weeks per year}}{50.4} = 1.032 \times 6 = 6.19 \text{ weeks} \end{aligned}$$

The development of Recruit Training loads and training staff requirements begins with the computation of enlistments into the Air Force as described in II.B.1.b. above. The Air Force equates non-prior service accessions for each year with training input for purpose of computing training loads. Inputs for Reserve and National Guard trainees are provided by those organizations. The critical element is Active Air Force enlistments since they comprise over 90% of the total workload.

Monthly Active Air Force NPS accessions are shown at Table II-8. In FY 1979 accessions varied from a low of 4439 in April to a high of 7093 in August. For FY 1980, the variations range to 20% from the average accessions of 5867 per month. For FY 1981, the variations in inputs are smoothed out with the maximum fluctuation

Table II-8. MONTHLY NPS ACTIVE ENLISTED ACCESSIONS-USAF

	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>
OCT.	5439	5051	6072	5225
NOV.	4860	5076	5244	5470
DEC.	5905	4744	4750	5818
JAN.	5592	5601	6150	6599
FEB.	5082	4844	5430	6079
MAR.	6008	4938	5628	6700
APR.	5100	4439	4849	6141
MAY	4739	5145	4966	5896
JUNE	6716	5833	6213	5961
JULY	6513	7088	7032	5767
AUG.	6536	7093	7033	5898
SEPT.	<u>5537</u>	<u>6648</u>	<u>7033</u>	<u>5446</u>
TOTAL	68,027	66,500	70,400	71,000

estimated at 13% from the average of 5917. The significance of this is that staffing has to be programmed to meet peak recruiting capabilities.

About 7% of active recruits who enter Recruit Training are separated from the Air Force before completion. The Air Force estimates that 7% of accessions will be recycled during Recruit Training. These estimates are based on historical data, and may change as actual experience warrants. For purposes of programming workloads and manpower, they are considered to be offsetting.

Because of recruiting difficulties experienced in recent years, the Air Force must accept recruits when they are available. Accordingly, at certain periods there are a number of personnel who are on the rolls but awaiting training. Because these personnel require supervision, they are considered in computing workloads. The Air Force previously applied a 10% factor which was found to be high and adjusted to 4% for the FY 1979 budget under the expectation of an even flow of new recruits. Workload estimates for FY 1980 and FY 1981 use the 4% factor. This factor may now be low, and is subject to adjustment based on FY 1980 experience.

Inputs for Reserve and National Guard personnel are provided by those organizations. Attrition rates for each of these categories of personnel are slightly higher than for Active Air Force personnel. Accordingly, Reserve and National Guard workloads are computed separately. An illustrative display of Recruit Training inputs, outputs and loads for FYs 1979, 1980, and 1981 follows in Table II-9:

Table II-9. USAF RECRUIT TRAINING

	Estimated FY79			Estimated FY80			Estimated FY81		
	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS
ACTIVE	66500	61712	8233	70400	65331	8716	71000	65888	8790
RESERVE	2346	2178	280	3196	2961	362	3200	2960	262
NATIONAL GUARD	3850	3392	431	4719	3983	518	4719	4247	534
TOTALS	72696	67282	8944	78315	72275	9596	78919	73095	9686

(2) Organization

The organizational arrangement and typical staffing at the Basic Military Training School is shown at Figure II-7. The basic variable related to inputs and workload is the flight to which instructors who are immediately responsible for trainees are assigned. Accordingly, changes in workload are translated to changes in flights and related instructor requirements for programming and budgeting purposes.

Note that the organizational chart shows a squadron for foreign training. Training of foreign personnel and the instructors and staff who may be involved are charged to Foreign Military Sales. Foreign personnel are not included in workloads or manpower charged to program element 84711, Recruit Training.

c. Initial Skill Training

Air Force Initial Skill Training is conducted at many different locations giving a wide variety of courses ranging in duration from a few weeks to many months. Courses may be scheduled to start on any training day, and the number of trainees in each course varies in accordance with the nature of the instruction and the numbers to be trained over the year. For purposes of programming and budgeting Air Force uses 11.9 as the normal group size.

BASIC MILITARY TRAINING SCHOOL

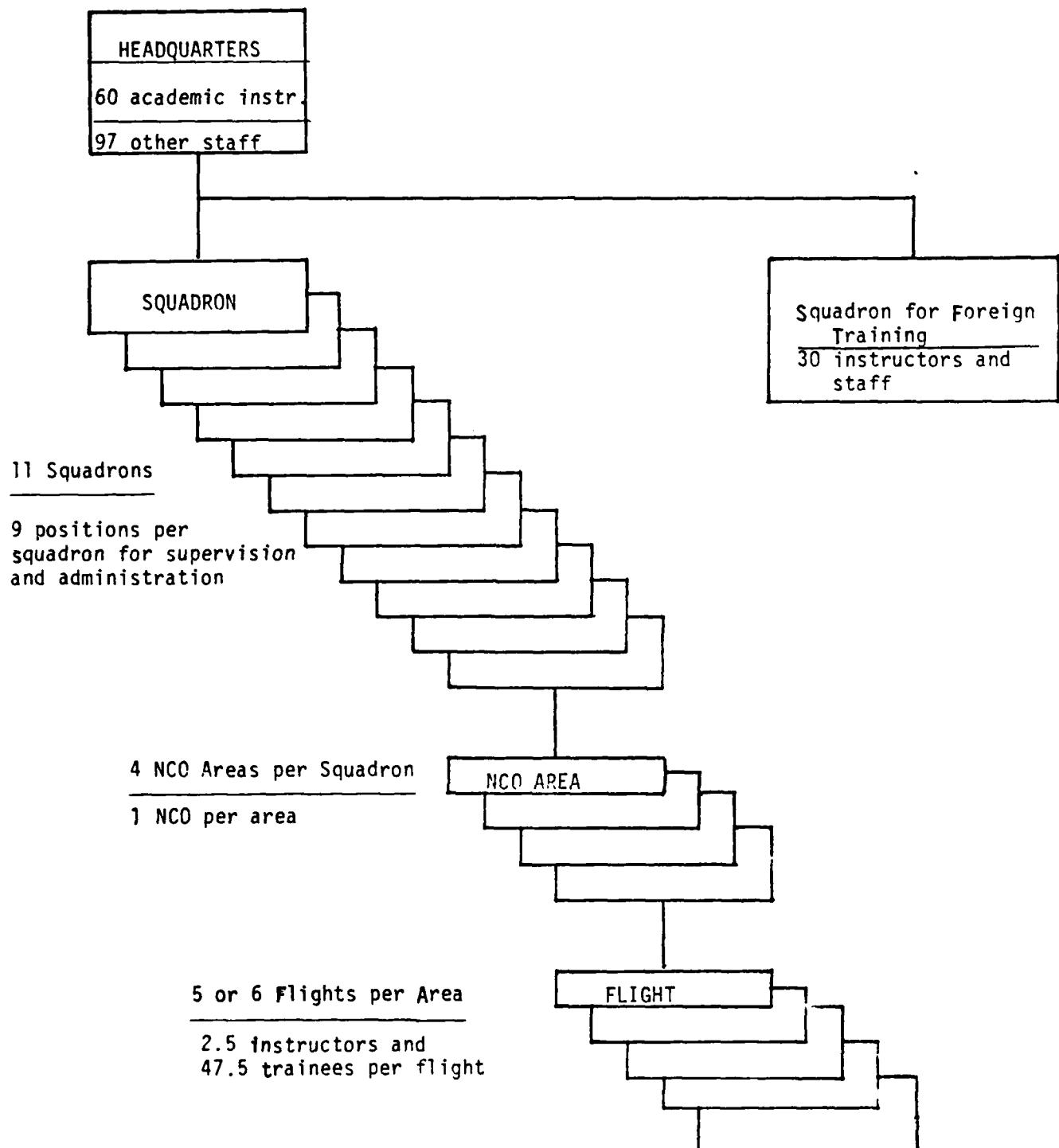


Figure II-7. ORGANIZATION AND STAFFING OF BASIC MILITARY TRAINING SCHOOL, LACKLAND AIR FORCE BASE

For program and budget calculations, the Air Force uses a weighted average course length of 11 weeks for workload computations. Average weighted course length includes non-training days, weekends and holidays. However it does not provide for waiting time, which is accounted for in the workload formula by adding a "standard load" of 1338. This figure was developed in past years when there was a minimum of waiting time because initial accessions, and subsequent flow from Recruit Training could be scheduled precisely to meet Air Force convenience. However, in recent years the flow has been less dependable and the number awaiting Initial Skill Training has been averaging 2000 and is now approaching 3000. The "standard load" for personnel awaiting training is therefore subject to revision.

Initial skill loads are primarily a function of the output from Recruit Training. However, the Air Force also trains one-half of prior service accessions (estimated to be 1150 for FY 1981), and about 6000 active Air Force "retrainees." These are, for the most part, trained personnel whose AFSC has become excess to current needs or who desire to shift career fields for some other reason. The retrainee estimate, along with that of prior service personnel, has been based on historical experience, but may be out of date. New personnel tracking procedures being established will permit Air Force planners to use more reliable data for projecting prior service and retrainee inputs to Initial Skill Training.

In addition to Active Air Force workload described above, Air Force Reserve and National Guard, personnel of other Services and some foreign personnel are trained. While workloads are computed for these personnel

and basic staffing provided for training support, the Air Force considers that only changes in Active Air Force loads are significant enough to affect manpower programming and budgeting.

There is about a 6% attrition loss among trainees during the Initial Skill Training phase. The Air Force makes no provision in its workload formulas for recycles pending the better data which improved personnel tracking systems are expected to generate. However, flexibility to vary class size and other variables provides the capability to accomodate recycles without concern for their impact on loads.

Total inputs, outputs and training loads for Initial Skill Training, as projected for FY 1981 in the FY 1981 budget estimate, are shown on Table II-10. Data for FY 1978 through FY 1981 for each of the four program elements which include Initial Skill Training are contained in Appendix B.

Table II-10. INITIAL SKILL TRAINING LOADS
FY81 ESTIMATES

	<u>INPUTS</u>	<u>OUTPUTS</u>	<u>LOADS</u>
ACTIVE	67108	62410	14682
RESERVE	3412	3194	551
NATIONAL GUARD	<u>4004</u>	<u>3797</u>	<u>771</u>
TOTAL			
TRAINING LOADS	74524	69401	16004

D. NAVY

1. Requirements Determination

a. Introduction

This section describes the process by which the Deputy Chief of Naval Operations (Manpower, Personnel and Training) (OP-01) determines the number of enlisted persons to receive initial entry training and the manpower required to provide the training. The Navy determines the requirement during each fiscal year for non-prior service (NPS) accessions needed to maintain the authorized end strength for current and budget years. Program year end strengths are approved for strength planning to allow for continuity in the accession flow. Once the end strength authorizations are available to the strength planner then calculations can be accomplished in the Navy Strength Planning Model (SPAN) by the Enlisted Programs Implementation Branch (OP-135). The predicted losses to Navy enlisted strength as well as predicted reenlistments and prior service accessions are input to the model for managing gross enlisted resources. The model produces a monthly accession plan for NPS accessions that is coordinated with the Naval Recruiting Command by OP-135 prior to implementation in the current and budget years as the approved program.

The approved enlisted accessions are part of the constraint on the attainment of the Navy goal for Initial Skill Training requirements. The Initial Skill Training requirements are identified initially in the Chief of Naval Operations Enlisted Requirements Plan. To determine the number of entrants to Class "A" schools (which perform training leading to a skill or rating) the STAPLAN (Status-Time-Attrition Planning Methodology) model is used. The model provides the requirement for training for each rating

based on a comparison of requirements taken from the CNO Enlisted Requirements Plan and projected inventory and then produces a listing by fiscal year of Navy Class "A" School training input requirements. These input requirements are constrained by the expected level of Recruit Training graduates and the adjusted level is then published as the Class "A" School Training Input Plan. This is the number of persons to be trained by the Chief of Naval Education and Training (CNET) during the fiscal year in "A" Schools. The Apprentice School Training input is the difference between "A" School input and Recruit Training output. For FY 1980, approximately 71% of recruit graduates will be sent to "A" School and 29% to Apprentice Training.

The manpower requirements in support of Navy initial entry training are workload derived. However, FY 1981 is a "get well" year for the Navy training establishment. This can be observed by projected increases in instruction and decreasing workload per instructor.

A diagram of the Navy decision process for training is provided as Figure II-8.

b. Accession Determination

Navy accession requirements are approved as part of the PPBS cycle. The approved end strength provided for annually in the Defense Authorization Act is the driver of accession goals during the current year. Outyear strength levels approved by OSD in the POM and budget estimate are used for longer term strength planning. A number of variables that influence non-prior service accession requirements are input to the Navy SPAN Model to derive NPS accessions. These include rates for distributing the different variables used; the projected

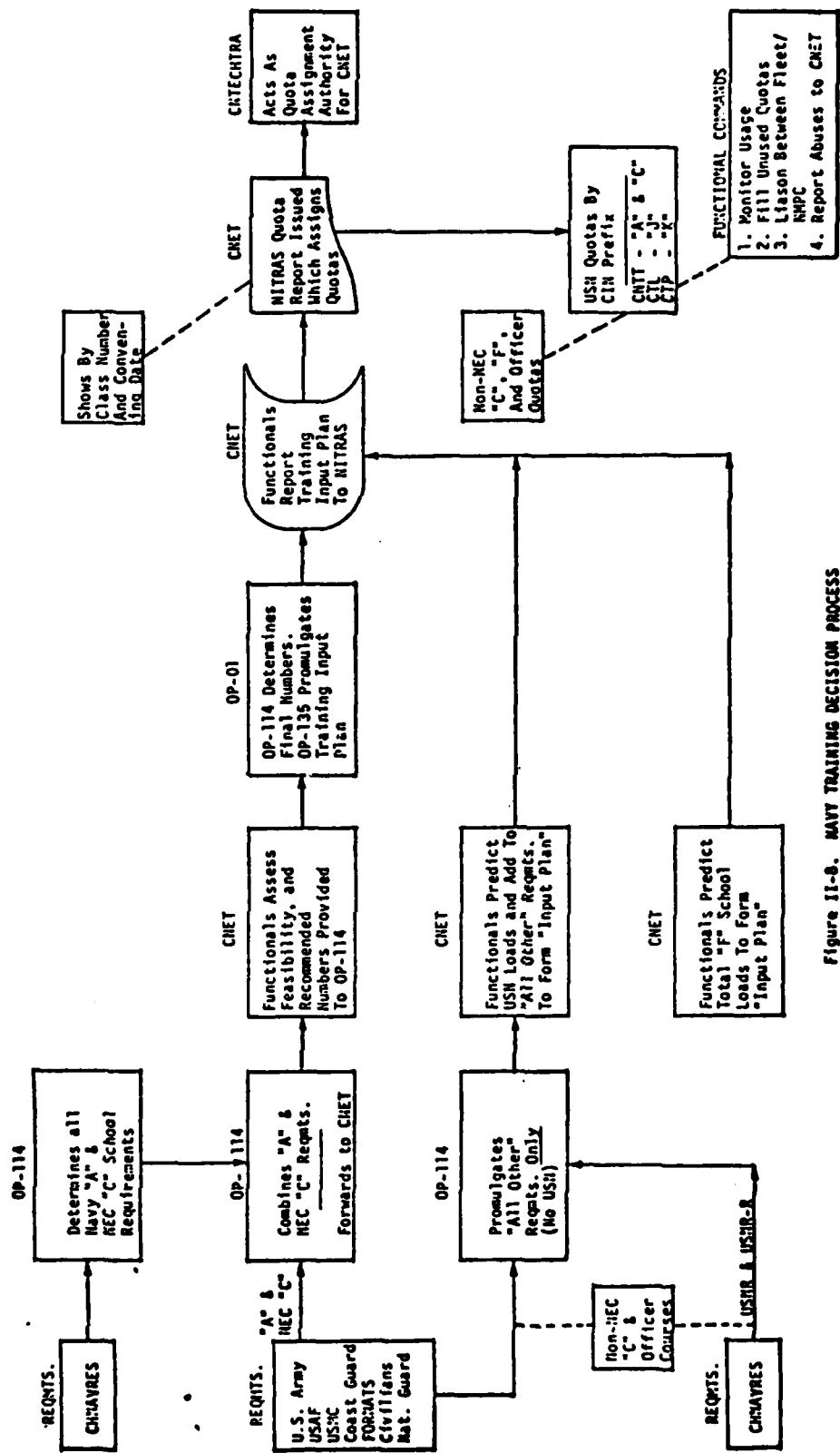


Figure 11-8. NAVY TRAINING DECISION PROCESS

gains, losses and continuances; and the actual gains, losses and continuances. The output is monthly accessions for NPS enlisted. Prior service enlisted are projected based upon historical rates of recent experience. All NPS accessions are inputs to Recruit Training.

c. Skill Determination

Navy Initial Skill Training requirements are developed on the basis of what is needed to meet the petty officer requirements by rating. This is defined by the Chief of Naval Operations Enlisted Requirements Plan. Once those requirements have been satisfied in the form of entrants to Class "A" Schools, the remainder of recruit graduates are detailed to Apprentice School.

Currently, outyear planning (the POM years) for Initial Skill Training is accomplished by the Training Resources Model (TRM) for Class "A" Schools and Apprentice Training. Budget year requirements are more finely tuned by use of the Status-Time-Attrition Planning (STAPLAN) Model.

The number of Navy personnel who enter Initial Skill Training is driven directly by annual accession levels and graduates from Recruit Training.

Skill requirements, upon which Initial Skill Training planning is based, are provided by the CNO Enlisted Requirements Plan. To determine the number of inputs to Class "A" Schools in a given year, the STAPLAN model, which is an inventory projection model is used. Briefly, STAPLAN uses the following as input:

- CNO Enlisted Requirements Plan
- End of the fiscal year inventory of Navy personnel by EAOS (End of Active Obligated Service)

- Reenlistment rates by rating for first term and career personnel
- Retirements by rating
- Broken service gains by rating
- Loss rates by rating

STAPLAN takes the existing Navy inventory by rating plus planned yearly inputs (based on accession levels) and projects them on an annual basis for five years. The inventory projections are then compared with the CNO Enlisted Requirements Plan. A three year curve fit technique is then used to determine the deficit (if any) between the rating inventory and requirements three years out from the planning year. The basis for using a three year curve fit is that training plans are driven by CNO petty officer requirements, and it takes roughly three years to "grow" a petty officer. This calculation establishes what is called a "peg number" which is the required gains to a rating. The gains are the number of personnel required to be input to Class "A" School training to achieve the CNO petty officer requirements three years hence. Once this number has been established, attrition rates are put in based on recent school experience. From these calculations, the Active Navy Class "A" School Training Input Requirements are determined.

The Navy also provides Initial Skill Training to other Services and these requirements must also be included in the total input requirements. The Training Requirements Section (OP-114C) is the office charged with the responsibility for generating these requirements through use of STAPLAN and coordinating with the other Services for their inputs.

The Training Input Requirements are then sent via the Chief of Naval Education and Training (CNET) to the functional command responsible for conducting Apprentice and Class "A" School training. Feasibility studies are con-

ducted to ensure that sufficient resources exist or will be made available to train the requirements. Any deficiencies noted are passed back to OP-01.

At this point, the requirements are passed from OP-114 to OP-135 who is responsible for promulgating the Class "A" School Training Input Plan, an example of which is contained in Appendix B. In issuing the plan, adjustments must usually be made to the requirements based on the most recent accession level data which indicates that too many (unusual) or too few (usual) recruits will be available for Initial Skill Training to satisfy requirements. OP-135 must then adjust the requirements to meet the expected level of recruit graduates available for Class "A" School training. In the most common case, reductions have to be made. These are coordinated with the Community Managers (formerly the Enlisted Rating Coordinators). Once this adjustment is made, the Class "A" School Training Input Plan is sent to CNET for implementation.

CNET has designated the Chief of Naval Technical Training (CNTT) as the responsible organization for scheduling classes and assigning quotas for Apprentice and Class "A" Schools. CNTT uses the Navy Integrated Training Resources and Administration System (NITRAS) for this purpose.

Because Class "A" School training is mandatory to "growing" the required number of skilled petty officers, every effort is made to meet these requirements. There are no requirements for Apprentice Schools. Rather, they are filled by those personnel who cannot be absorbed in the Class "A" Schools.

d. The Accession Flow

After graduating from Recruit Training, almost all Navy enlisted personnel go to either Apprentice School or to Class "A" Schools for Initial Skill Training prior to first duty assignment or further training. There are, however, a very small number of recruits (~2%) who go to other Services for Initial Skill Training. Figure II-9 depicts the usual training flow for Active NPS Navy enlisted personnel. Table II-11 below provides a distribution of Recruit Training graduates (Active Navy-all Reserves go to "A" School).

Table II-11. RECRUIT TRAINING GRADUATE DISTRIBUTION

	<u>FY78*</u>	<u>FY79**</u>	<u>FY80**</u>	<u>FY81**</u>
Recruit Graduates	78,690	73,053	87,213	88,129
To Apprentice	18,293	13,359	25,054	23,731
% of Graduates	23%	18%	29%	27%
To Class "A"	60,397	59,694	62,159	64,398
% of Graduates	77%	82%	71%	73%

* Actual.

** Estimated.

NOTE: Extract from Exhibit OP-14 Data for FY 1981 Budget, September 1979.

Navy Reserve trainees (USNR-R) make up approximately 2% of Navy Recruit Training workload and 3% of "A" School workload. No USNR-R trainees go to Apprentice Training. Most prior service accessions are assigned directly to the fleet, about 17% go to initial entry training.

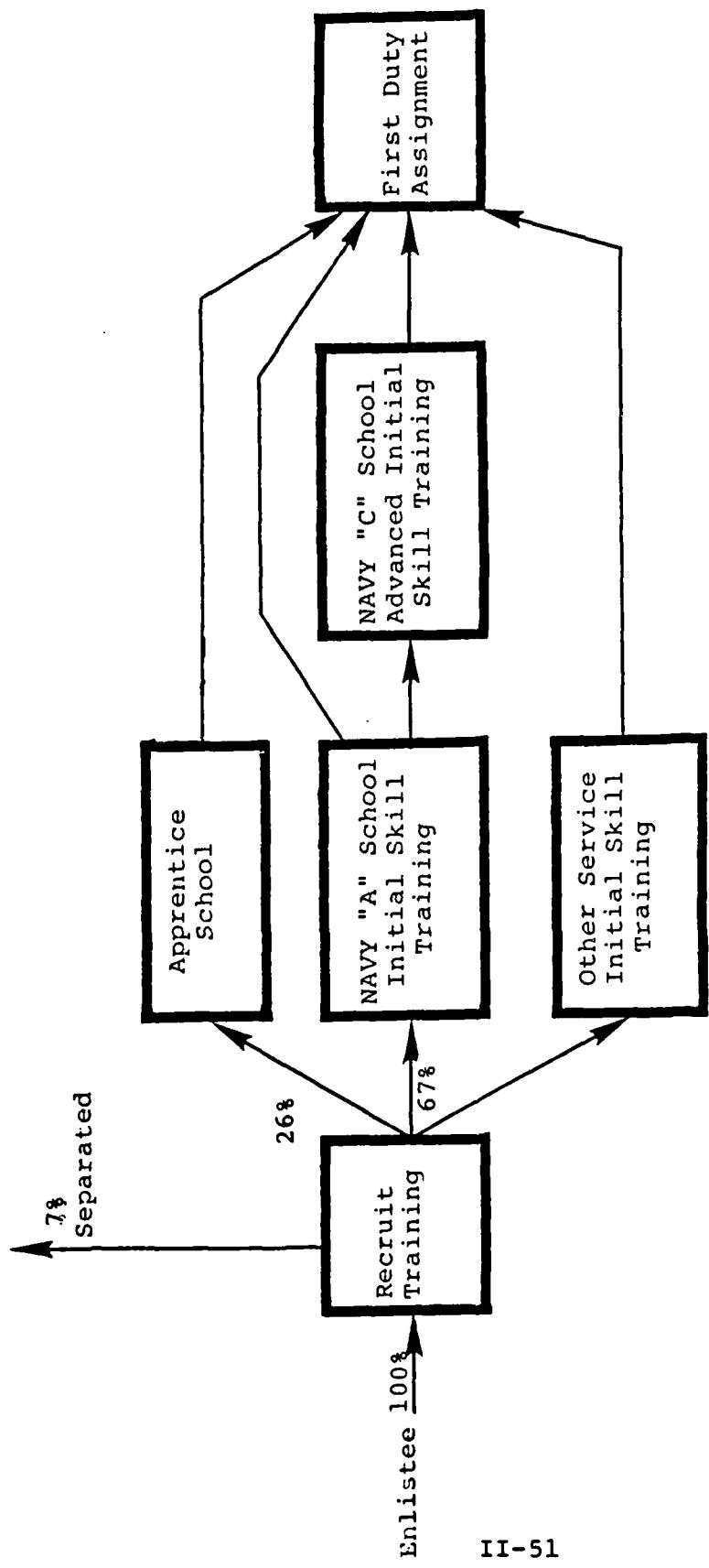


Figure II-9. FY81 NAVY ACCESSION DISTRIBUTION

e. Manpower in Support of Training

Navy initial entry training requires close supervision of the personnel and intensive training in the skills being developed. The relationship of instructors to workload is based upon a requirement to provide both classroom instructors as well as drill instructors who are company administrators. The programming methods used by the Navy as well as the current and projected ratio of instructors to workload will be addressed in more detail under Functional Description. All manpower in support of initial entry training (Recruit, "A" School, and Apprentice) is the responsibility of the Chief of Naval Education Training (CNET).

2. Functional Descriptions

a. Introduction

The Chief of Naval Education and Training (CNET) is responsible for initial entry training as well as most other Navy individual training. Navy initial entry training is characterized by the seasonality of the inputs. Upon entry in the Navy all NPS personnel and those other Service prior service personnel out over two years attend Recruit Training followed by either "A" School or Apprentice Training. The determination of whether a sailor attends "A" or Apprentice School is dependent upon the skill for which training is required. Many Navy skills are obtained by on-the-job training (OJT) for which the basics of Apprentice School are sufficient. The percent of Recruit Training graduates attending Apprentice School is 29% in FY 80 and 27% in FY 81. The rest go to "A" School. A small percentage of "A" School graduates continue on to further training in "C" School. However, most "A"

School and all Apprentice School graduates go direct to the fleet. About 12% of "A" School attendees are from the fleet and have previously attended either a different "A" School or, in most cases, Apprentice School. No Naval Reservists are sent to Apprentice Training.

b. Recruit Training

(1) Training

Navy Recruit Training is 7.7 weeks long for both males and females. It is conducted at three Navy Recruit Training Commands located at Great Lakes, Illinois; San Diego, California; and Orlando, Florida. The Recruit Training curriculum consists of 380 formal sessions of 10 sessions per day. The weekly schedule uses five working days per week for the training activities designated in the curriculum. The daily schedule is based on ten forty-minute periods of instruction/activity with a regimented routine for a 24 hour day. The daily routine for weekends and holidays is scheduled so as to continue to enforce discipline. Weekend time and holiday time is used for religious activities, reinforcing Recruit Training, remedial training, athletics, controlled recreation and other such activities approved by the local commanding officer. Recruit Training provides the basic skills and knowledge needed to adapt to Navy life and to prepare for follow-on training.

The number of entrants, graduates, and loads for Navy Recruit Training are shown in Table II-12 for FY 78-81.

Table II-12. NAVY RECRUIT TRAINING

	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>
Entrants	83,552	81,480	97,234	94,835
Graduates	78,690	73,053	87,213	88,129
Loads	14,560	13,169	15,665	15,290

The distribution of the graduates is primarily to "A" School with the remainder going to Apprentice Training as shown in Table II-13.

Table II-13. DISTRIBUTION OF RECRUIT TRAINING GRADUATES

	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>
To "A" School	60,397	59,694	62,159	64,398
To Apprentice	18,293	13,359	25,054	23,731
TOTAL	78,690	73,053	87,213	88,129

The number shown going to Apprentice Training varies based on "A" School requirements and Recruit Training output.

Recruit Training manpower requirements are tied directly to the number of accessions to be trained. The number of instructors is established by the training load and its distribution throughout the year. The training/workloads and instructors are compared in Table II-14.

Table II-14. COMPARISONS OF LOADS TO INSTRUCTORS

	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>
Loads	14,560	13,169	15,665	15,290
Instructors	1,032	1,085	1,148	1,083
Ratio I/L	.0708	.0824	.0733	.0708

For the purposes of computing training workload an average course length of 58 days is used by OPNAV in the programming Training Resource Model known as TRM. This consists of 54 days instruction and weekend/holidays, and 4 days for recycle/sick leave. Recruit Training begins every weekday so that the only delays are when new trainees arrive on a weekend. The time that accrues due to holidays/weekend prior to or after Recruit Training is carried as administrative days. They are not charged to training workload although they are calculated as part of total average on-board strength. Administrative days add an additional 3 days to the "pipeline" per recruit.

For the purpose of explaining the seasonality of Recruit Training inputs a chart of NPS Enlisted Accessions (Active and Reserve) is provided in Table II-15, (taken from Exhibit OP-14, Part A-1, FY 81 budget estimate).

Table II-15. MONTHLY NPS ENLISTED ACCESSIONS

	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>
OCT.	7,779	7,062	8,028	8,299
NOV.	6,305	5,483	6,944	7,242
DEC.	4,811	4,661	5,454	5,574
JAN.	7,138	6,883	7,660	7,833
FEB.	5,382	5,731	6,993	7,141
MAR.	5,449	5,520	7,092	7,124
APR.	4,252	4,817	6,851	7,093
MAY	5,071	5,199	7,717	7,409
JUNE	9,559	9,047	10,158	9,107
JULY	9,832	8,703	9,976	9,034
AUG.	9,489	8,548	9,996	9,099
SEPT.	<u>8,485</u>	<u>8,540</u>	<u>9,081</u>	<u>8,596</u>
TOTAL	83,552	80,194	95,950	93,551

Prior service inputs average 1286 a year and have limited impact. Of note is the high percent of inputs (47% or higher) during the period June through October.

(2) Organization

The Navy structure for Recruit Training consists of a total of 29 Recruit Training Divisions located at the three Training Commands. The standard organization of the Naval Recruit Training Commands is provided in Appendix B.

The manpower requirements in support of Recruit Training are prescribed in a standard organization for each Recruit Training Command. The standard organization may add or subtract the number of instructors necessary to train the anticipated workload. The mission element for Navy Recruit Training contains the total authorized strength of the Recruit Training Commands and the FY81 budget estimate Exhibit OP-14 Part B provides a breakout of this manpower as shown in Table II-16.

Table II-16. RECRUIT TRAINING MANPOWER

	FY78			FY79			FY80			FY81		
	Off	Enl	Civ									
Inst.	-	1032	-	-	1085	-	-	1148	-	-	1083	-
Spt.	92	223	21	96	235	10	99	240	10	99	240	10
TOTAL	92	1255	21	96	1320	10	99	1388	10	99	1323	10

Recruits are assigned to a recruit company which may contain as few as 50 or as many as 84 trainees, although 70 is considered to be optimal.

Each company has two drill instructors (enlisted) who act as company commander and assistant. There is no set number of companies because they are formed as required by the number of recruit arrivals. The division structure remains static and companies are formed and assigned when needed. There are 12 divisions at Great Lakes, 9 at San Diego and 8 at Orlando.

c. Initial Skill Training

(1) Apprentice School

The purpose of Apprentice Training is to prepare Navy Recruit Training graduates for assignment to the fleet in one of three apprentice ratings: Airman (AN), Fireman (FN), or Seaman (SN). Currently, the school average pipeline lengths are: AN School 17.2 days, FN School 32.9 days, and SN School 18.1 days. Approximately half of the inputs go to Seaman Apprentice School the rest are about evenly divided between Airman and Fireman Apprentice Schools. School lengths are programmed to increase in FY 1981 to an average of four weeks. All Apprentice Training is conducted by the Recruit Training Commands, each of which have an Apprentice Training Department which conducts all three Apprentice Schools (AN, FN, SN). Trainees assigned to Apprentice Schools are assigned to companies as in Recruit Training so as to continue a disciplined environment throughout the training process.

(2) "A" School

The purpose of "A" School is to train Navy personnel in a particular skill or rating.

There are 84 ratings for which training is provided in "A" School. "A" Schools are operated at many locations throughout the country. During FY 1980 there are 162 courses for enlisted personnel averaging 48 days in length. Most students attend more than one course in "A" School.

Apprentice and Class "A" School programmed training is supported by the following instructors (I) and training and educational support personnel (T&ES) (end strengths) taken from the Exhibit OP-14 Data for the FY 81 Budget, September 1979. The data are a combination of PEs 84731N, 84733N, and 84734N. Table II-17 below represents the programmed training support for the FY 81 Budget. The ratio of instructors to other support is shown to be increasing.

Table II-17. INITIAL SKILL TRAINING SUPPORT MANPOWER

	FY78		FY79		FY80		FY81	
	I	T&ES	I	T&ES	I	T&ES	I	T&ES
Officers	460	362	382	486	375	375	468	365
Enlisted	5,691	1,817	5,837	1,862	5,646	1,611	6,410	1,792
Civilians	0	568	0	508	0	504	0	484
TOTAL	6,151	2,747	6,321	2,752	6,132	2,490	6,878	2,641
Ratio I/T&ES	2.24		2.30		2.46		2.60	

The following Table, II-18, sums up the total training workloads which are supported by the manpower shown above in Table II-17. The primary reason that training load is less than workload is due to the large number of Marines, Coast Guard, and foreign nationals trained by Navy "A" Schools.

Table II-18. INITIAL SKILL TRAINING LOADS/SUPPORT

	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>
Training Load	20,813	20,307	20,605	21,256
Work Load (WL)	28,813	28,751	28,150	28,640
Training Support* (TS)	8,898	9,073	8,622	9,519
Instructors (I)	6,151	6,321	6,132	6,878
I/WL	.22	.22	.22	.24
TS/WL	.32	.32	.31	.33

* Includes instructors and training/education support.

NOTE: Extract from Exhibit OP-14 Data for FY 1981 Budget, September 1979.

The ratio of instructors/training support to workload increases in FY 81.

E. MARINE CORPS

1. Requirements Determination

a. Introduction

This section describes the process used by the Marine Corps to project the number of enlisted persons to receive initial entry training and the manpower required to provide the training. Marine Corps requirements for new accessions are developed using the summary of gains and losses taken from the Marine Manpower System (MMS) and personnel procurement capabilities to meet desired non-prior service (NPS) objectives for end strength goals. The output is a yearly accession schedule necessary to maintain USMC unit strengths. The USMC Recruit Training Model uses the projected monthly accession goals as well as other empirical and projection information to predict recruit workload. A sample input and output display is provided in Table II-19.

Table II-19. RECRUIT TRAINING MODEL SAMPLE
INPUT AND OUTPUT

ENTER FY OF DATA? 1980
IS THIS YEAR A LEAP YEAR? (1=YES, 0=NO) ? 1
ATTRITION RATE? (.10=.10%, .20=.20%, ETC) ? .12
MEAN TIME TO ATTRITION? (INTEGER DAYS) ? 50
MEAN TIME TO GRADUATION? (INTEGER DAYS) ? 81
LEVEL MONTHLY INPUT? (1=YES, 0=NO) ? 1
DIFFERENT INPUT PATTERN FOR INDIV MONTHS? (1=YES, 0=NO) ? 0
ENTER 12 MONTHLY INPUTS (JUN THRU SEP) ? 5022, 6352, 4305, 3923
MONTHLY OR ANNUAL INPUT? (1=MONTHLY, 0=ANNUAL) ? 1
ENTER 6 MONTHLY INPUTS (OCT THRU MAR) ? 3350, 2950, 2100, 3250, 2700, 2300
ENTER 6 MONTHLY INPUTS (APR THRU SEP) ? 2600, 2450, 5100, 4800, 4500, 3500

MONTH INPUT

OCTOBER	3350
NOVEMBER	2450
DECEMBER	2100
JANUARY	3250
FEBRUARY	2700
MARCH	3300
APRIL	2000
MAY	2450
JUNE	5100
JULY	4800
AUGUST	4500
SEPTEMBER	3500

MONTH	AUG LOAD	PEAK LOAD	PEAK DAY	END STRENGTH
SEP	19491	11729	1	9608
OCT	9657	9544	1	7300
NOV	7325	7343	1	6344
DEC	6397	6618	31	5613
JAN	6529	7076	29	7076
FEB	7153	7118	21	6826
MAR	6276	6789	1	7841
APR	5609	5829	1	5668
MAY	7173	6813	30	3619
JUN	3960	11967	31	11967
JUL	11784	12173	20	11919
SEP	11153	11868	1	18534

MONTH	GRADUATES	CUML GRADS	ATTRITION	CUML ATTRITION
SEP	5038	5038	523	523
OCT	3786	8824	438	956
NOV	3289	12052	367	1323
DEC	2692	14744	284	1687
JAN	1362	16706	230	1887
FEB	2174	18880	376	2263
MAR	2675	21555	310	2573
APR	2307	23912	266	2339
MAY	1998	25904	236	3095
JUN	1933	27742	414	3509
JUL	3037	30779	611	4120
SEP	1341	36120	545	4665

AUG DAILY LOAD FOR FY 1980 = 3814

There is no model used to develop the accession program. It is developed by the HQ USMC manpower planners in coordination with the personnel procurement planners. The accession program is intended to maintain Marine Corps enlisted strength at those levels authorized by the Congress. The projected other gains, losses, and experience in receiving accessions on a monthly basis are all included. The determination of the skill for which each new accession will be trained, called Military Occupational Specialty (MOS), is developed by an inventory model at Headquarters Marine Corps, the Training Output Plan (TOP). TOP is part of the Enlisted Force Management System (EFMS).

The manpower requirements in support of training are developed by changes from an existing base as known school and course changes are directed.

A diagram of the Marine Corps training decision process is provided as Figure II-10.

b. Accession Determination

Marine Corps accession requirements are approved as a part of the PPBS cycle. The end strength authorized by Congress drives accession goals for the active force. The USMC Reserve accessions are derived from the requirement to keep reserve units at authorized strength. The Congressional authorization for the USMC Reserve is seldom changed so the goals are based on predicted losses. Table II-20 is an initial budget display showing the monthly distribution of Marine Corps accessions. All NPS accessions are inputs to Recruit Training.

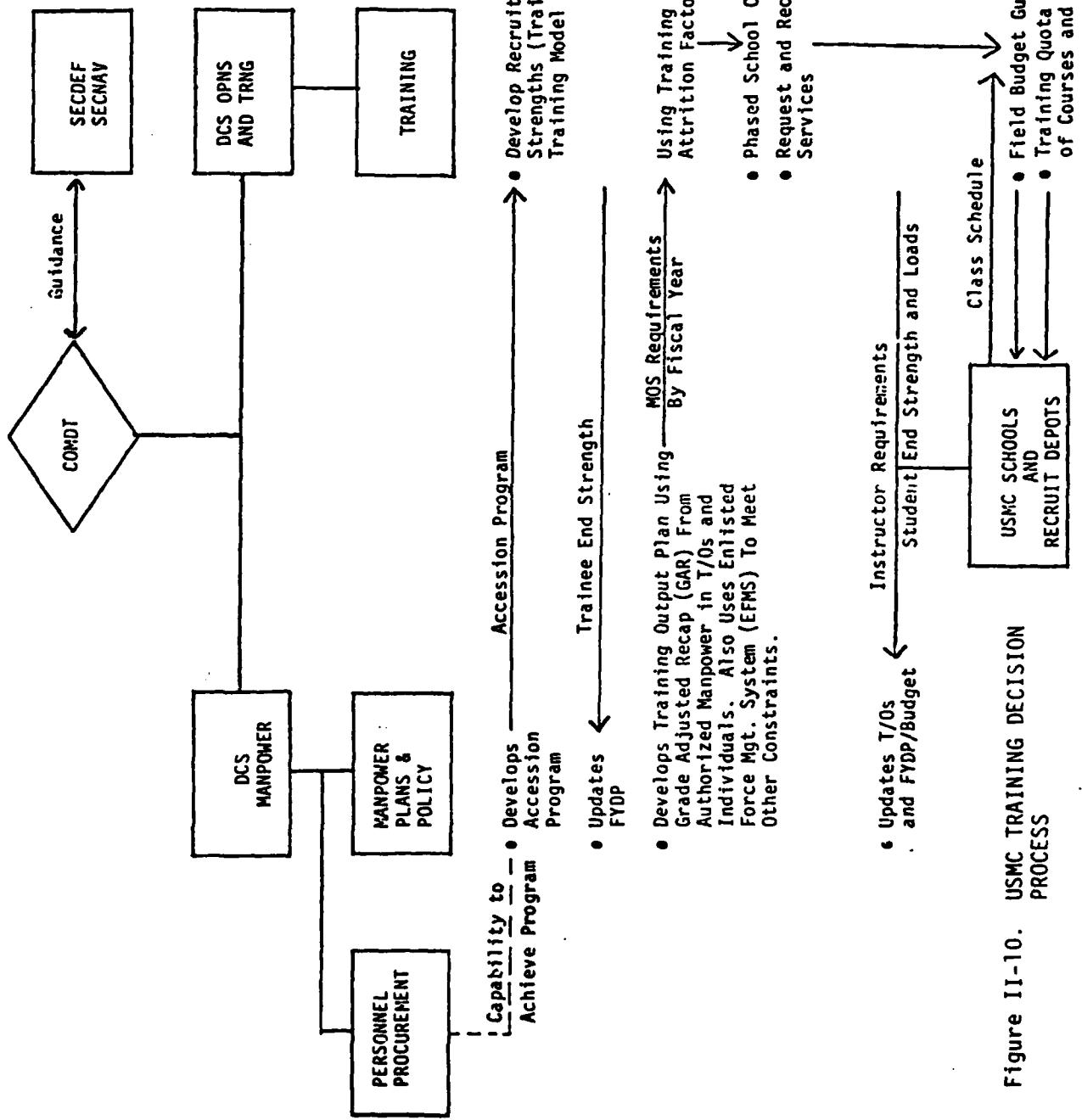


Table II-20. USMC ACCESIONS

EXHIBIT OP-14 FOR FY81 BUDGET

PART A-1: MONTHLY NPS ENLISTED ACCESIONS
(Total)

	FY78 (Act)			FY79 (Est)			FY80 (Est)			FY81 (Est)		
	Male	Female	Total									
October	5134	314	5448	3545	214	3759	3872	109	3981	3926	220	4146
November	2729	142	2871	2697	137	2834	2907	210	3117	2962	210	3172
December	2394	182	2576	2223	96	2319	2520	210	2730	2572	119	2691
January	3965	204	4169	3848	305	4153	3798	220	4018	3758	220	3978
February	3052	213	3265	3007	219	3226	3221	220	3441	3326	217	3543
March	2998	222	3220	2747	168	2915	2771	220	2991	2978	217	3195
April	1948	223	2171	2510	183	2693	2474	220	2694	2456	106	2592
May	3253	221	3474	2538	111	2649	3105	220	3325	3228	211	3539
June	5339	194	5533	6322	200	6522	6253	217	6470	5898	109	6007
July	6253	252	6505	7132	375	7507	5647	217	5864	5278	331	5609
August	4601	155	4756	5333	158	5491	5286	217	5503	5114	109	5223
September	4646	340	4986	4467	350	4817	4230	220	4450	4458	331	4789
Total	46312	2662	48974	46369	2516	48885	46084	2500	48584	45984	2500	48484

SEP 14 1979

c. Skill Determination

The Marine Corps Initial Skill Training requirements are developed by use of the Enlisted Force Management System (EFMS) which, using a program called Training Output Plan (TOP), constructs a profile for each Military Occupational Specialty (MOS) within each Occupational Field (OCC FLD). The program determines the optimal training output required to sustain each MOS and OCC FLD and, subsequently, the total Marine Corps on the basis of first and second year manning requirements. The primary inputs to the TOP subroutine are career force total E1 through E4 MOS requirements taken from the Grade Adjusted Re-capitulation (GAR). The principal output is the "Yearly Training Output" necessary to support GAR requirements. This table is then factored manually using the constraint of total NPS accessions and first year attrition. The Training Output Plan is then given to the Occupational Field Specialists for a comparison with actual inventory versus requirements as well as any known changes in equipment or other technical adjustments. This revised plan is then given to Training Division (Plans and Budget Branch) for calculation of school courses. These are promulgated by means of the Field Budget Guidance which gives courses to be taught to the schools and by the Training Quota Memorandum which is a list of courses and quotas for the fiscal year.

The Training Output Plan (TOP) is constrained by total NPS accessions for the last three months of the previous fiscal year and the first nine months of the fiscal year under development. An example is provided for FY80 as Table II-21.

Table II-21. TOP CALCULATION

	<u>Month</u>	<u>Male</u>	<u>Female</u>
FY79	Jul	6352	337
	Aug	4565	140
	Sep	3823	332
FY80	Oct	3350	91
	Nov	2450	192
	Dec	2100	192
	Jan	3250	202
	Feb	2700	202
	Mar	2300	202
	Apr	2000	202
	May	2450	202
	Jun	<u>5100</u>	<u>199</u>
		40440	+ 2513 = 42953

Applying attrition for the first twelve months of service yields the expected output to the Marine Corps. The factors used were 12.2% for the first six months and 3.0% for the second six months.

$$\begin{array}{r}
 42952 \\
 \times .878 \quad (0-6 \text{ months attrition}) \\
 \hline
 37713 \\
 \times .970 \quad (7-12 \text{ months attrition}) \\
 \hline
 36581 \approx 36274 \quad (\text{FY 80 Revised TOP})
 \end{array}$$

The Training Output Plan at Appendix B has an MOS spread that equals 36274 for FY 80. The Training Output Plan includes those accessions who receive training by means of on-the-job training (OJT) as well as formal Initial Skill Training. An example of a Marine Corps OJT distribution plan is provided as Table II-22.

Table II-22. DISTRIBUTION PLAN FOR OJT FOR FY80^{1/}

<u>MOS</u>	<u>Number from TOP</u>
0441	98
0811	745
1371	296 (768 by school)
1381	161
1391	426
2512	860
2531	711 (1398 by school)
3051	989
3081	9
3111	385
3121	46
3141	13
3311	16 (140 by school)
3371	280 (528 by school)
3531	2492
3535	510
4111	7
4131	91
4621	3
4652	<u>23</u>
	8161

1/ This is based on the Revised FY 80 Training Output Plan
(used for illustration only).

The current programming methodology used by Headquarters, Marine Corps for POM and budget is based upon a factoring technique which uses the historical relationship of Recruit Training output, Initial Skill Training input, and Initial Skill Training loads.

d. The Accession Flow

Upon completion of Recruit Training, graduates are either sent to further skill training or assigned to units for on-the-job training (OJT). In FY 1981 approximately 27% of Recruit Training graduates go to units. A large number of Marines are sent to other Services, principally the Navy and Army, for skill training. This number is about 40% of graduates from Recruit Training for FY 1981. Figure II-11 depicts the flow of Active Marine Corps NPS accessions. Prior service accessions are usually assigned to units. Table II-23 provides an example of the distribution of Active Marine Corps Recruit Training graduates (Reserves are approximately the same).

Table II-23. RECRUIT TRAINING GRADUATE DISTRIBUTION

	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>
Recruit Graduates	35886	35953	37147	35800
To Initial Skill Training	23685	25167	27117	26134
% of Graduates	66%	70%	73%	73%
To Units for OJT	12201	10786	10030	9666
% of Graduates	34%	30%	27%	27%

NOTE: Extract from Exhibit OP-14 Part A for FY 1981 budget estimates, September 14, 1979.

Marine Corps Reserve trainees make up about 17% of Recruit Training workload and 13% of Initial Skill Training load.

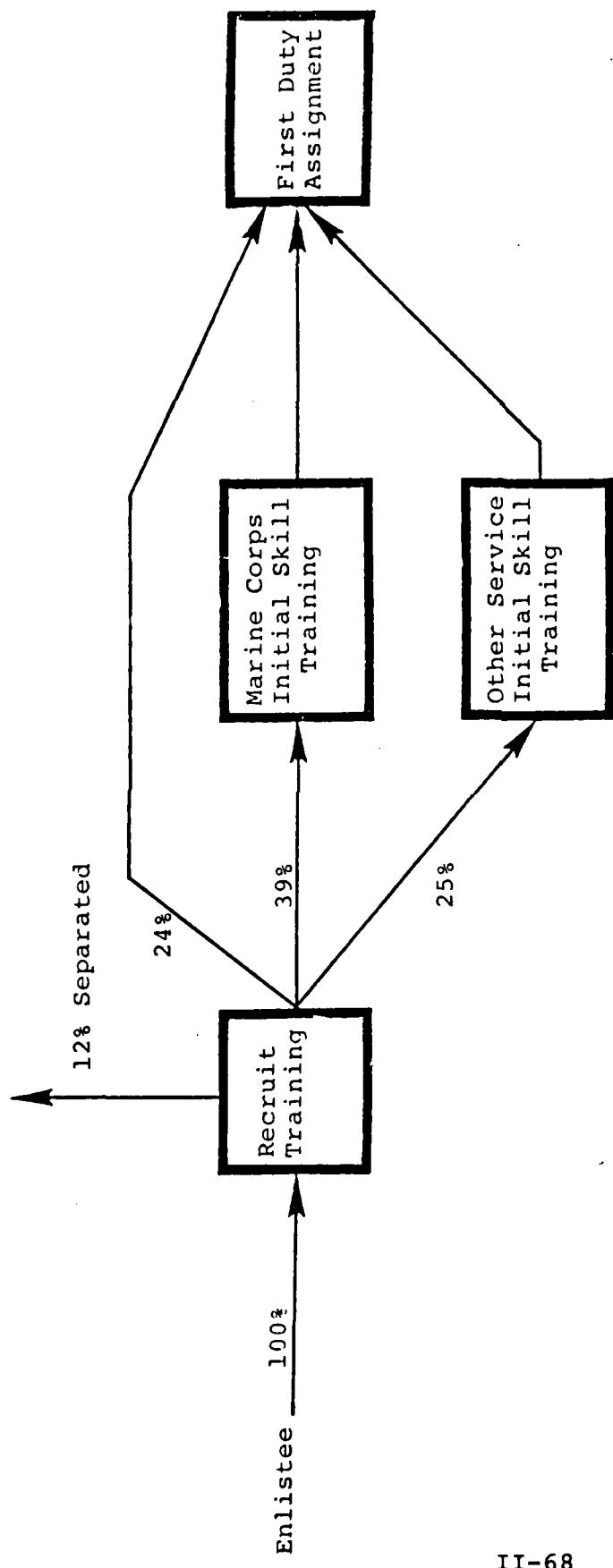


Figure II-11. FY81 MARINE CORPS ACCESSION DISTRIBUTION

e. Manpower in Support of Training

Marine Corps initial entry training manpower requirements are developed by the Recruit Depots and Marine Corps Schools. These are validated and adjusted by Headquarters, Marine Corps manpower surveys every three years. They are also adjusted for known changes in length of courses, numbers of students, new courses or old courses. Additionally a substantial number of instructors/support personnel are provided to the other Services to support Marine Corps students.

2. Functional Descriptions

a. Introduction

There is no training command in the Marine Corps. The schools and Recruit Depots are managed by Headquarters, Marine Corps under staff supervision of the Deputy Chief of Staff for Operations and Training.

One characteristic of USMC initial entry training is the seasonality of the inputs of male non-prior service accessions. Peak input is during the months of June, July, August, and September when 50% of male accessions join. Female accessions are more evenly distributed throughout the year but as their numbers are only 5% of the total and their course is operated separately, the impact is minor. Another aspect of enlisted initial entry training is the large number of Marines receiving their training in part or all from other Services. Out of 253 MOS in the FY 80 TOP 20 are trained by OJT, 173 by other Services, 12 by USMC/other Services, and 48 by USMC schools. The OP-14 part A for enlisted Initial Skill Training shows that out of a total active training load of 7383, 4491 (61%) was accomplished as Marine Corps workload and the remainder (39%) by other Services.

b. Recruit Training

(1) Training

Marine Corps Recruit Training is 72 days long for males (56 days for females). This is the longest recruit training period of all Services (Army 49 days, Navy 54 days, and Air Force 43 days) and as it is more comprehensive, a significant number of Marine recruit graduates are assigned directly to unit duty. This does not happen in the Army, Navy, and only to a limited degree in the Air Force (OJT program--8% of graduates). The closest analogy is Army Infantry OSUT which lasts 84 days (allowing for a great deal more weapons training). USMC Recruit Training is conducted at two depots located at Parris Island, South Carolina and San Diego, California, respectively. The male recruit curriculum consists of approximately 335 hours of academic subjects and 239 hours of non-academic time devoted to administrative and service activity. Training is conducted six days a week except for holidays. Recruit series start three days a week at each depot (Mon., Tues., Wed., at Parris Island; Wed., Thurs., Fri., at San Diego).

The number of entrants, graduates and loads for Marine Corps Recruit Training are shown for FY78-81 in Table II-24.

Table II-24. MARINE CORPS RECRUIT TRAINING*

	FY78 (Act)			FY79 (Est)			FY80 (Est)			FY81 (Est)		
	ENTRS	GRAD.	LOAD	ENTRS	GRAD	LOAD	ENTRS	GRAD	LOAD	ENTRS	GRAD	LOAD
Training Loads												
Active	41241	35886	965?	41657	35953	8841	40784	37147	8584	40484	35800	8426
Reserve	7733	7094	1935	7228	6044	1466	7000	6727	1618	8000	6965	1674
Total Training Loads	48974	42980	11587	48885	41997	10307	48584	43874	10202	48484	42765	10100

*Extracted from Exhibit OP-14 part A for FY 1981 budget estimates dated September 14, 1979.

The distribution of graduates is shown in Table II-25 for FY 1978 - FY 1981 (taken from part A-2 exhibit OP-14 for FY 81 Budget, September 14, 1979):

Table II-25. DISTRIBUTION OF RECRUIT TRAINING GRADUATES*

	<u>FY78</u>	<u>FY79</u>	<u>FY80</u>	<u>FY81</u>
To Initial Skill Training	23685	25167	27117	26134
To Units for OJT	12201	10786	10030	9666
TOTAL ACTIVE	35886	35953	37147	35800
To Initial Skill Training	4682	4231	4911	5084
To Units for OJT	2412	1813	1816	1881
TOTAL RESERVE	7094	6044	6727	6965
GRAND TOTAL	42980	41997	43874	42765

*The division into Active/Reserve was provided by USMC Training Plans and Budget Branch (MC-OTTB).

The Recruit Training Model uses 80 days for male graduate course length and 60 days for females. This is because an additional 10% has been added to course length to account for waiting time prior to entry to Recruit Training (this is devoted to initial processing and a share of weekend and holiday time prior to class starting) and recycle time.

(2) Organization

The structure of the two Marine Recruit Training Regiments (one at Parris Island and one at San Diego) is shown on Figure II-12. Of the six companies at each depot, three have six series and three have five series. A series is an organizational entity that starts the 72 day recruit training cycle at a particular date with four platoons each for a total of 132 platoons. A platoon can train from 55 to 75 personnel at a time. All female recruits are trained at Parris Island in the Woman Recruit Training Command which has eight platoons which can train 55 to 75 personnel at a time.

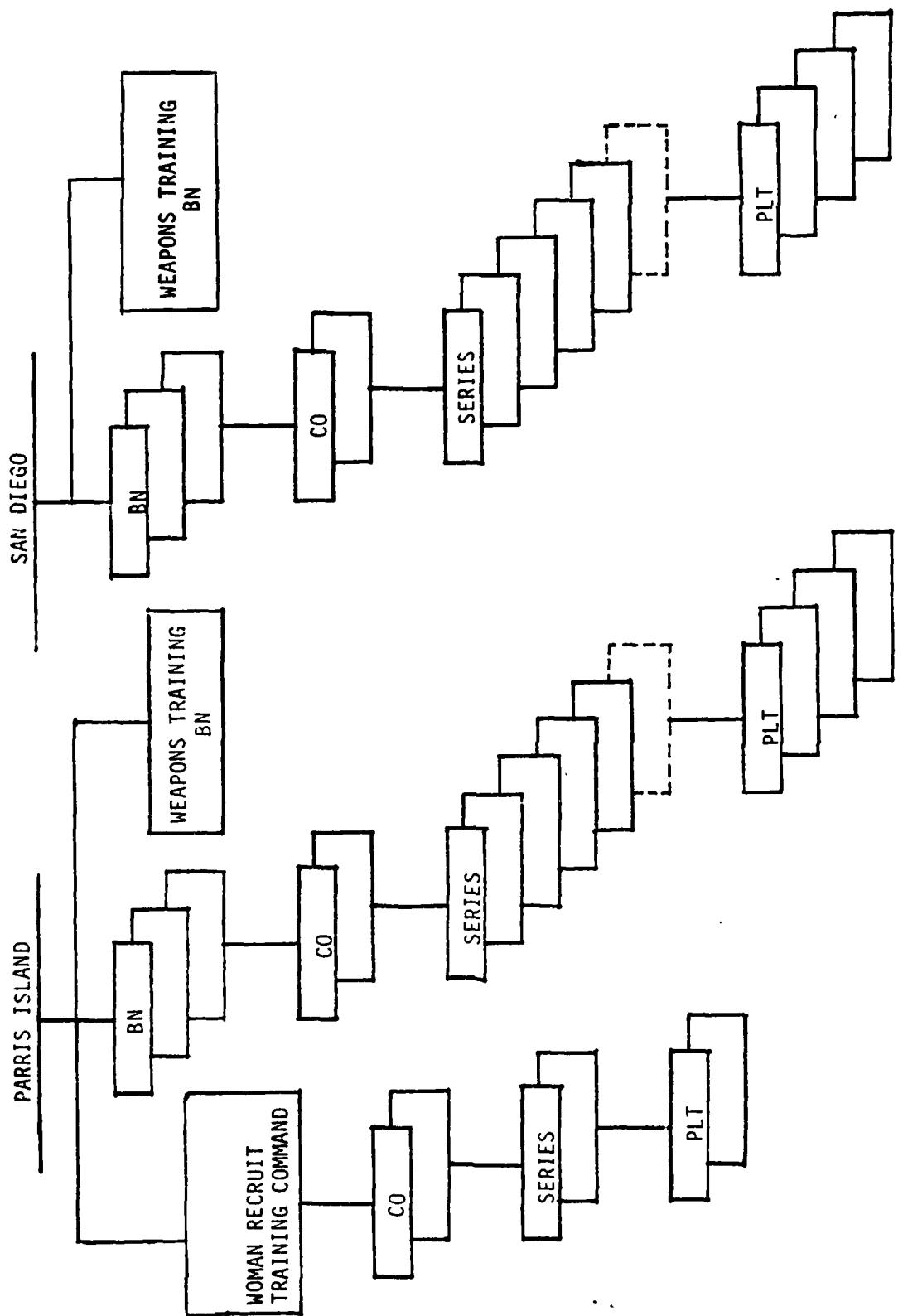


Figure III-12. RECRUIT DEPOT TRAINING CAPACITY

The mission element for Marine Corps Recruit Training contains the authorized strength of the two regiments which totals 260 officers and 2,146 enlisted for FY 80 and 81 (T/O strength). The actual day-to-day training is done by the drill instructors within each series. A series has two officers and 13 enlisted drill instructors with responsibility for insuring 24 hour a day, 7 day a week supervision. The absolute maximum peak load that can be trained is 9,900 male recruits at each depot. However, this would require all 132 platoons to have 75 trainees. Fortunately, the peak load of 16,327 male NPS in August 1979 was less than the 19,800 maximum capability. Future projections do not approach the peak capability as closely.

Comparisons of training load and Program Element 84711 overhead and trainee end strength figures are shown in Table II-26 (28 September 1979 FYDP update):

Table II-26. OVERHEAD AND TRAINEES

	<u>FY79</u>			<u>FY80</u>			<u>FY81</u>		
	Off	Enl	Civ	Off	Enl	Civ	Off	Enl	Civ
Overhead	265	2,188	10	260	2,146	10	260	2,146	10
Trainees*	--	12,515	--	--	10,911	--	--	10,671	--
Training Load		10,307			10,202			10,238	

*Active only 30 September end strength.

The Overhead is broken out in Table II-27 for FY 1980.

Table II-27. OVERHEAD *

	<u>OFF</u>	<u>ENL</u>
Hq Parris Island Recruit Training Regt	22	260
Hq San Diego Recruit Training Regt	31	260
Weapons Training BN PI	13	260
Woman Recruit Training CMD PI	11	85
Weapons Training BN CMP PEN**	15	275
Recruit Training BN (3) PI	96	630
Recruit Training BN (3) SD	99	501
SUBTOTAL	287	2,301
FY 80 Undistributed Manpower Change	-27	-155
Total in FYDP (FY 80)	260	2,146

*Extracts 1 September 1979 of T/Os.

**Conducts range firing for San Diego.

c. Initial Skill Training

(1) Training

Initial Skill Training provides the necessary training required to qualify a trainee in an MOS. Training conducted by the Marine Corps takes place at six locations for Initial Skill Training. However, this only constitutes 60% of the training. The rest is done by the other Services.

A computation of average course length was made by MCR using the training tracks provided by MC-OTTB; an example USMC training track is furnished for occupational field 70 (Aviation Operations) in Appendix B. The 86 day calculated course length is weighted based on the number of projected students in the TOP. This was done by dividing the MCR calculated training load of 6648 by the number of students trained from TOP of 28113 (36274 - 8161 OJT = 28113 trained in schools).

X

$$\frac{6648 \text{ manyears}}{28113 \text{ students}} = .2365 \text{ years} \times 365 \text{ days} = 86 \text{ days}$$

It should be noted that the 6648 MCR calculated training load from the training tracks does not include waiting time, re-cycles, "washdowns" (transfers from one MOS course to another), or travel. This helps to explain the difference between the MCR calculated training load and the Marine Corps FY 80 programmed enlisted Initial Skill Training load of 7383.

A display of budgeted enlisted Initial Skill Training is shown in Table II-28.

Table II-28. ENLISTED INITIAL SKILL TRAINING

	FY78		FY79		FY80		FY81	
	ENTRS	GRADS	ENTRS	GRADS	ENTRS	GRADS	ENTRS	GRADS
Active	41573	37789	43719	40300	47102	43353	45394	41781
Reserve	4706	4436	4971	4677	6766	6436	6766	6436
TOTAL	46279	42225	48690	44977	53868	49789	52160	48217
Training Load	6948		8001		8255		7837	

(2) Organization

The several courses taught at the Marine Corps schools are supervised and resources provided by the school commander or base commander (more than one school). Overall supervision is conducted by Headquarters Marine Corps.

The Marine Corps has provide the following information concerning manpower for training support within Specialized Skill Training. There is no separation among Initial Skill, Skill Progression, and Functional Training or between officer and enlisted training.

X

Table II-29. TRAINING SUPPORT (MISSION ELEMENTS)*

<u>OFF</u>	<u>ENL</u>	<u>CIV</u>	<u>OFF</u>	<u>ENL</u>	<u>CIV</u>	<u>OFF</u>	<u>ENL</u>	<u>CIV</u>
756	3904	156	488	3455	124	501	3727	126

*Extracted from Budget Exhibit OP-14 for FY81 budget estimates, September 14, 1979.

A further distribution by location is provided in Table II-30 which shows the current authorizations extracted from the table of organizations as a total of 492 officers and 3464 enlisted at the end of FY 79. The FY 80 and 81 programs can be derived as follows:

Current Staff Authorization:	492	3464	124
Changes: Miscellaneous	+6	-34	+2
Mountain Warfare Center	+2	+91	--
Inf. Trng School, Camp Lejeune	--	+164	--
AMTRAC School, Camp Pendleton	+1	+42	--
FY 80/81 Training Spt.	501	3727	126

Not surprisingly, 164 officers and 1096 enlisted are located at other Service training facilities (asterisked on Table II-30.)

X

Table II-30.
TRAINING SUPPORT MANPOWER^{1/}

PE84731M

<u>T/O</u>	<u>TITLE</u>	<u>OFF</u>	<u>ENL</u>
*5060	Instructors/Admin - Joint Schools (Army, Navy, AF, DoD)	100 (79)	278 (178)
7014	Logistics Base Albany	7 (5)	23 (18)
7211	San Diego Hqs & Spt Bn	3 --	26 (20)
7221	San Diego Hq Co Spt Bn	2 --	12 --
7311	Parris Island H&S BN	2 --	14 (13)
7321	Parris Island Hq Co RTR	1 --	9 (9)
7434	Comm Off Sch Quantico	15 (11)	92 --
7437	Comm Sch Quantico	14 (6)	37 (16)
7450	The Basic School Quantico	135 (55)	731 (8)
7540	Engineer School Camp Lejeune	20 --	211 (99)
7551	Service Support School, Camp Lejeune	13 (3)	85 (6)
7552	Supply School, Camp Lejeune	14 (12)	76 (53)
7553	Food Service School, Camp Lejeune	5 (2)	53 (22)
7554	Motor Transport School, Camp Lejeune	11 (4)	144 (67)
7561	Division Trng & Educ, Camp Lejeune	1 --	-- --
7570	Field Medical Service Sch, Camp Lejeune	-- --	10 (6)
7611	HQs MCB, Camp Pendleton	-- --	83 (--)
7632	Schools BN MCB, Camp Pendleton	12 --	116 (38)
7650	Field Medical Service Sch, Camp Pendleton	1 --	7 (3)
7661	Infantry Training School, Camp Pendleton	21 --	176 (49)
7720	Comm-Elec School, 29 PALMS	51 (7)	463 (228)
*8221	Marine Air Training Spt Grp, Millington	37 (2)	496 (302)
*8225	Marine Air Training Spt Grp, Meridian	4 (1)	42 (30)
*8227	Naval Air Maint Trng Grp, Millington	6 --	209 (192)
*8280	Marine Air Training Spt Grp, Lakehurst	3 (2)	27 (20)
	Subtotal	478 (189)	3420 (1377)
*PE84733M		11 (9)	22 (21)
*PE84734M		3 (3)	22 (22)
	Total	492 (201)	3464 (1420)

* Located at Other Service Facilities () = instructors

1/ extracted from USMC T/O file as of 30 Sept 1979.

SECTION II FOOTNOTES

1/ Automatic Interaction Detector, Enlisted.

III. INITIAL ENTRY TRAINING MODELS

A. INTRODUCTION

This section describes models for each phase of initial entry training for each Service. It includes the models the Services use in programming training load, training manpower, and trainee end strength. It also includes an evaluation of these models and recommends the model best suited for OSD.

Also discussed are "models" (or formulas) prescribed by OSD for calculating training loads contained in the annual Military Manpower Training Report (MMTR), and the formulas for calculating instructor requirements used by the Inter-service Training Review Organization (ITRO).

The terms training load and training workload, as well as the end strength related terms (trainee and student), are defined in the MMTR and discussed below. However, there are other terms not as well defined that are components of the calculation of loads and the related manpower and end strength. These will be defined within pertinent sections.

Training Loads. These are the "military training student loads" which are detailed in Chapters III through VII of the MMTR--the average number of military trainees, students, and cadets of each Service and component in training during a given fiscal year, which is subject to annual congressional authorization. Training loads include all military manpower of a given Service or component who are undergoing individual training, regardless of whether the training is conducted by the parent Service, one of the other Services, a DoD school, or by an agency or institution outside the Department of Defense, such as a civilian college or university. Training loads also include all military personnel in training regardless of their assignment status. Some trainees and students

are assigned to the training activity; others are attending training in a temporary duty (TDY) or temporary additional duty (TAD) status while remaining assigned to their parent units; still others are attending while in transit from one permanent assignment to another.

Since training loads are an annual average and most courses are much shorter than a year in length, the actual number of students and trainees who enter training, and the number who graduate, is considerably greater than the training load. For example, the total programmed training load for Recruit Training in FY80 is less than 50,200, yet over 326,300 persons are to enter Recruit Training and about 304,700 are to graduate.

Training Workloads. The total number of trainees and students undergoing training within DoD includes some trainees and students of foreign nations, DoD civilian employees, and members of other departments and agencies of the U.S. Government, notably the Coast Guard. In addition, many U.S. military students and trainees are trained by a Service other than their own. Consequently, the average number of students being trained by a given Service, or its training workload, usually differs from its training load. For example, the Marine Corps has a programmed Flight Training load of 713 in FY80; however, since the training is conducted by other Services, its Flight Training workload is zero. On the other hand, because the Navy trains many personnel from other Services, Coast Guard, and foreign students as well as most of its own students, Navy Specialized Skill Training workload is higher than its training load.^{1/}

B. TRAINING LOAD/WORKLOAD ALGORITHMS

This section describes the Services methods' for calculating training load and workload, evaluates them, and recommends models for OSD use.

AD-A102 498

MANAGEMENT CONSULTING AND RESEARCH INC FALLS CHURCH VA F/G 5/9
AN ASSESSMENT OF THE METHODS USED TO DETERMINE RESOURCE REQUIRE--ETC(U)
MAY 80 R D MCCONNELL, W E DEPUY, E W KAHN MDA903-79-C-0095
UNCLASSIFIED NL
MCR-TR-8001-1

2 OF 3

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1. Description

a. OSD

The general formula described in the MMTR for training load is given below:^{2/}

$$L = \frac{\sum_{i=1}^n \left(\frac{E_i + G_i}{2} \right) t_i}{Y}$$

where L is Average Training Load,

n is the number of classes,

i is a class (1, 2,...n) scheduled for a training course within the training category under consideration,

E_i is number of expected entrants to scheduled class i,

G_i is number of expected graduates from scheduled class i,

t_i is the calendar length of the syllabus of class i, and

y is the length of a calendar year expressed in the same units as t (1 year = 12 months = 52 weeks = 365 days).

Fractions of carryover classes conducted during the year are included as though they were separate classes. However, individuals remaining in class at the end of a period are not counted as graduates, nor are individuals already in a class at the beginning of a period counted as entrants except for purposes of computing training loads for these fractions of courses.

The training load for a category or sub-category of training (e.g., Specialized Skill Training or Functional Training within that category) is the sum of the loads computed for all classes of courses within the category or sub-category.

This method of computation implies "straight-line" attrition, under an assumption that net class attrition occurs at a constant rate during a course. In the relatively few cases when attrition patterns experienced characteristically produce a significantly different distribution of attrition, the more appropriate attrition pattern is used in lieu of the term $\frac{E+G}{2}$.

Both the general formula and the prescribed definitions are adhered to in the data submitted to OSD in various documents such as the POM, Budget, and MMTR. However, there are variances in the internal pieces such as entrants, graduates, and course lengths when detailing a category of training.

b. Army

(1) HQ DA Model

The HQ DA Model is used by the Army Staff to compute training workload.

$$\text{Workload} = \frac{\text{Input} + \text{Output}}{2} \times \frac{\text{Course Length in Weeks}}{50 \text{ Weeks}^3/}$$

The same model applies to Recruit Training, OSUT, and Initial Skill Training.

- Workload is the average number of persons who will be undergoing Army-conducted training during the fiscal year. The same model applies to all initial entry training modes and courses.
- Input is the number of persons projected to enter training during the fiscal year plus a 7% allowance for recycles. Initial entrants include Active Army trainees, personnel from Army units on TDY or Student status, Reserve Component personnel, personnel of other military Services, U.S. civilians, and foreign personnel. Course attrition, those who are dropped from course rolls, is a combination of those who are separated from the Army, returned to their respective

Reserve unit, National Guard unit, or Service, recycled to another class or transferred to another course of instruction. Course attrition rates are computed separately for each course of instruction.

- Output is the number of personnel projected to complete the particular course of training which began during the fiscal year. Outputs projected for a given year include some who will not actually graduate until the subsequent year. It does not include a graduate of classes begun in a prior fiscal year.
- Course length is the number of weeks (and fraction) between the first and last day of a course. These are elapsed calendar days, not necessarily training days, and include intervening weekends and holidays. No additional allowance is made for time trainees (or others) may spend in a training unit before training begins or after it has been completed. Army Recruit (Basic) Training is 49 days or seven weeks at all training centers. One Station Unit Training (OSUT) ranges from 12 weeks for some basic infantry MOS to 18 weeks for a Water Supply Specialist. Similarly, Initial Skill Training courses range from 3 to 47 weeks. A "weighted average" course length for any group of courses, or program element may be derived from related input, output and load totals computed in the Army program element Report which is a product of the Army Training Requirements and Resources System (ATRRS).
- Number of weeks in a year is a variable because the Army considers a year to be a "training year" of 50 weeks. Courses are scheduled to allow for a two week period around the Christmas/New Year holiday during which no training is conducted. (A 50 week year is equivalent to 350 days.) At the holiday break period, trainees are afforded the option of leave, or may remain on station.
- The use of the DA Model is important because workloads computed by the DA model are the "official" Army workloads used in submissions to OSD related to the POM, Budget, and MMTR. (Training loads are computed under the same formula, and include loads related to Army personnel trained by Non-Army elements and deducting Army workloads reflecting training for other than Active Army, USAR, and ARNG personnel.)

DA computed workloads are considered in staff evaluation of proposed changes in staffing related to individual training. There is no direct statistical relationship drawn between workload and manpower programming at DA level.

(2) TRADOC Model

The TRADOC Model is used by HQ TRADOC to compute manpower in support of training.

$$\text{Workload} = \text{Input} \times \frac{\text{Course Length in Weeks}}{50 \text{ Weeks}}$$

- Workload is the TRADOC version of the average number of persons who will be undergoing training conducted by the US Army Training and Doctrine Command during the fiscal year. TRADOC further characterizes workload as "Resident Student Load."
- Input for TRADOC is the input number of persons provided by HQ DA by course, station, course grouping, PE, etc. (A description of this input was furnished above under b.(1) HQ DA Model.)
- Course length for TRADOC is computed differently for Recruit Training, OSUT, and Initial Skill Training:
 - Recruit Training: two weeks are added to the seven week training period to allow one week for fill and one for maintenance, a total of nine weeks.
 - OSUT: one week is added to the actual training period since fill and processing is included in course syllabus. The length of OSUT courses with one week added ranges from 13 to 19 weeks.
 - Initial Skill Training: course length as specified in the program of instruction. No additional allowance is made for fill or maintenance.
- Number of weeks in a year for TRADOC follows the DA formula and uses a 50 week year as described above under the HQ DA Model.
- The use of the TRADOC Model is important because TRADOC uses workloads for determining precise manpower requirements for those organizational elements where "workload" is the basic yardstick or work unit. Staffing guides for Training Centers, which conduct Basic Training and OSUT, and for Service Schools specify which elements will use workload as the work unit. Other work units such as "population" or "military population" include "workload" as one element of the total work unit. For example, "population" includes average student load, required staff, faculty, and casualties.

TRADOC uses workloads as the exclusive work unit variable in its Manpower Estimating Relationships (MERs) models for determining manpower requirements for AIT at selected Army Training Centers, and for General Skill Training, General Intelligence Skill Training, and CRYPTOLOGIC/SIGINT Related Training at Army Service Schools. These estimates are used for planning manpower levels under a variety of alternatives, as a tool for measuring reasonableness of manpower estimates in the TRADOC Review of Manpower (TRM) process and for assessing ability to train at projected workload levels with projected manpower.

c. Air Force

(1) HQ Air Force Models

HQ Air Force uses separate models for each type of training.

(a) Recruit Training

1. Active Air Force

$$\text{Workload} = \text{Input} \times \frac{\text{Personnel Awaiting Entry Status}}{52 \text{ Weeks}}$$

- Workload is the average number of NPS trainees undergoing Air Force Basic Military (Recruit) Training during the year.
- Input is the number of Non-Prior Service accessions projected for the fiscal year. No adjustment to accession projection is made for recycles or attrition, both of which are estimated at 7% of accessions. The equal offset is an assumption made by the Air Force based on historical actual workload data.
- Personnel awaiting entry is an allowance of 4% for personnel waiting to start training. The previous factor was 10% and was adjusted by "realistic estimate" for level input and used in the FY79 budget. The Air Force now considers that 4% is on the "low side" since it must now take accessions when they are available as contrasted to a previous situation when entrants could be deferred if they interfered with an even flow system.

- Course length is 6.19 weeks which represents a 6 week calendar course with 32 training days. The factor was developed using the following rationale: 365 days per year - 104 weekend days - 9 holidays = 252 academic entry days. $252 \div 5$ training days = 50.4 academic weeks. To relate this to a 52 week year, Air Force uses $50.4 \div 52 = .969$. Therefore, 6 weeks $\div .969 = 6.19$ weeks.
- Weeks in year is a 52 week year.

2. Air Force Reserve Components

$$\text{Workload} = \frac{\text{Input} + \text{Output}}{2} \times \frac{\text{Course Length in Weeks}}{52 \text{ Weeks}}$$

- Workload is the average number of Reserve Component personnel undergoing Recruit Training at any one time. No allowance is made for waiting time as there are no problems in scheduling input.
- Input is the number actually projected to enter training. No addition is made for recycles because of the relatively low number of Reserve Component trainees.
- Output is the number projected to complete training. Difference represents attrition.
- Course length is 6.19 weeks which is the same as for Active Air Force (as described above).
- Weeks in year is the same 52 weeks as for Active Air Force (as described above).

3. Use of HQ Air Force Recruit Training Model

The workload produced for Active Air Force is used by the Air Force in support of the POM, Budget, and MMTR. It is also used as an element in the computation of trainee end strength in the Recruit Training account (PE 84711F). Changes in workload from fiscal year to fiscal year are used to compute changes in instructors required for Recruit Training.

(b) Initial Skill Training

Workload = NPS Input + PS Input + Retrainees

$$\begin{aligned} & - \left[\begin{array}{l} \text{Attrition Losses} \\ \text{and Fluctuations} \\ \text{in Course Training} \\ \text{Requirements} \end{array} \right] \times \frac{\text{Weighted Average}}{\text{Course Length in Weeks}} \\ & + \left[\begin{array}{l} \text{Standard Load of} \\ \text{Pre-Technical} \\ \text{Training Students} \end{array} \right] + \left[\begin{array}{l} \text{Average} \\ \text{Others} \end{array} \right] - \left[\begin{array}{l} \text{Average Air Force} \\ \text{Trained by Others} \end{array} \right] \end{aligned}$$

● Input depends on type:

- NPS input is (NPS Accessions - 7.2% Attrition) $\times .95$ of Recruit Training graduates who require further training. (May be stated as $.928 \times$ NPS Accessions $\times .95$).
- PS input is 60% of PS Enlistees. This factor is based on experience and estimates. Air Force does not currently accurately track PS vs NPS through initial training.
- Retrainees are estimated to be 6,000 for all years. These are career Airmen being retrained primarily from excess to shortage skills. The number (6,000) currently under reevaluation is based on the number of approved applications for voluntary retraining.
- Attrition and fluctuation in course training requirements are valued at 6% of input. The factor provides for unanticipated changes which normally occur in course lengths and densities during the year. The factor is primarily a function of attrition.
- Weighted average course length is 11 weeks. Individual course lengths are elapsed calendar days from entry to graduation including allowance for intervening holidays and weekends. It does not include waiting time.
- Standard load is the average number of trainees who have finished Recruit Training but are waiting for the start of their designated training course. The Air Force has used a fixed number (1,338) but now believes this number is too small. Actually there are about 3,000 trainees waiting, though the average is 2,000.

- Others is the average number of personnel of Reserve Components, other Services, other government agencies, foreign countries, and civilians who receive Air Force Initial Skill Training.
- The use of Hq Air Force Initial Skill Training Model is the same as the Recruit Training Model.

(2) Air Training Command (ATC) Models

Some previously used models are described below. They are no longer used.

(a) Recruit Training

$$\Delta \text{ Workload} = \Delta \text{ Input} \times \frac{\text{Course Length in Days}}{\text{Calendar Days per Year}} \div \text{Optimum Flight Size}$$

- Δ Workload expresses the impact of changes in the number of flights (which equates to 47.5 students per flight).
- Δ Input is the change in NPS accessions.
- Course length is elapsed calendar days for a course (ATC uses 43.5) including allowance for intervening weekends and holidays.
- Calendar days per year is 365.25, which considers leap year.
- Optimum flight size is 47.5 students per flight which allows the capability for 2.5 recycles per flight.
- The use of this Model is important to ATC because it computes changes in the numbers of Training Instructors (TI) and Academic Instructors (AI). (Different factors are applied to the workload for TI and AI changes.)

(b) Initial Skill Training

$$\Delta \text{ Workload} = \Delta \text{ Input} \times \frac{\text{Weighted Course Length in Weeks}}{\text{Calendar Weeks in Year}} \div \text{Weighted Group Size}$$

- Δ Workload is expressed in terms of the change in the number of groups (classes).

- Δ Input is the change in accessions times the percent of accessions who go on to Initial Skill Training (Technical Training). There is a separate percentage to technical training factors (% to TT) developed for each category of student in Initial Skill Training. The factor is a combination of attrition during Basic Military Training (BMT) and the percentage of BMT graduates who go directly to units without intervening Initial Skill Training. For example, USAF trainees have 7% attrition during BMT ($100 \times .93 = 93$) and 90.6% of BMT graduates enter Initial Skill Training. The factor from accession to Initial Skill Training is therefore $(1-.07)(1-.906) = (.93)(.906) = .8426$. Air Force Reserve personnel have BMT attrition of 10.8% and 83% of BMT graduates enter Initial Skill Training. The factor is therefore .7404 for Air Force Reserves.
- Weighted course length is 10.4 weeks; no waiting time is included.
- Weighted group size is computed for "normal" group size as 11.9 or "programming maximum weighted" to be 13.5.
- The use of the ATC Model is important because the model is used to compute changes in Technical Training Instructors relative to changes in input. A separate computation is made for each category of "student," i.e., Active Air Force, Air National Guard, Air Force Reserve, foreign, prior service Air Force, and retrainee. Each category has a different "% to TT" factor.

d. Navy

The Navy programming model known as the Training Resource Model (TRM) uses the following equations to calculate "Average On-Board" strength, which is synonymous with training load.

(1) Recruit Training

$$AOB = \text{Recruit Input} \left(\frac{2 - \text{Loss Rate}}{2} \right) \left(\frac{\text{Length of Recruit School}}{365} \right)$$

- Recruit input is total yearly accessions (prior other Service veterans times 40%, NPS Active, NPS Reserve).
- Loss rate is course attrition as reported by CNET.
- Length of Recruit School includes 53.9 days for curriculum, 3 days administrative time for processing, 4.1 days for waiting time and recycle (not separately identified) for a total of 61 days for FY79.
- This equation does not consider carryovers from previous years or into following years. That is, "graduates" are assumed as being in the same year as "entrants." The assumption is that it averages out over time.

(2) Apprentice Training

$$AOB = \frac{\text{Input} + \text{Output}}{2} \left(\frac{\text{Length of Training}}{365} \right) (\text{AOB, Other Rate})$$

- Input is output from Recruit Training (less Reserves times a percentage (roughly 30% although it varies year to year)).
- Output is input minus attrition.
- Length of training is not clearly defined as yet (still being checked by Navy) but is likely to be weighted length of curriculum for the three schools (21.3 days).
- AOB, other rate is defined as administration and recycle but may include waiting time. These cannot be separated by Navy.
- A calculation of other Service training is included here but how the length of training is included is not clear.

(3) "A" School Training

The following equation is used for each of 89 "A" School ratings. The sum of these separate calculations is total "A" School workload.

$$AOB = \left[\frac{\text{Input} + \text{Output}}{2} \left(\frac{\text{Length of Pipeline}}{365} \right) (\text{AOB, Other Rate}^*) \right]$$

* Chargeable rate

*Factor for each rating averages between 5% and 10%.

- Input is share of Active output from Recruit Training plus all Reserves and 12% from the fleet.
- Output is input minus attrition.
- Length of pipeline is not course curriculum but sum of courses and possibly some waiting time.
- AOB, other rate is administration and recycle. Navy cannot separately identify.
- % changeable rate is the PCS portion (Initial Skill Training portion for Active Navy only).
- Workload is calculated by multiplying the AOB by a ratio which is currently taken from the FY79 relationship of total Initial Skill Training load to training workload (currently 1.29).

e. Marine Corps

(1) Recruit Training

The Marine Corps Recruit Training Model calculates training load. The model uses monthly accession as inputs as well as mean time to graduation, mean time to attrition, and an attrition rate. The model does a separate calculation for NPS active males, reserve males, active females, and reserve females. An approximation of the calculation would be: Σ yearly accessions (% completion) (mean time to graduation in days \div 365) + Σ yearly accessions (% attrition) (mean time to attrition in days \div 365). However, the model does include carryover from previous years and excludes carryover into the following year so as to provide an accurate accounting. The Marine Corps use a figure of 80 days for mean time to graduation which approximates the course length of 72 days plus 10% for recycles and inprocessing time. The 50 days used for mean time to attrition also includes recycles and inprocessing time. The processing time approximates three days and a rough calculation for waiting time would be two days.

(2) Initial Skill Training

The calculation of training load and work-load is accomplished by establishing a ratio between the previous and current recruit training output, Initial Skill Training input and output, and holding course length static. The course length originally was derived from the first iteration in the FY80 MMTR of input and output and a separately calculated training load. The current results appear to be less than wholly accurate due to changes that have occurred from constantly factored original relationships which no one in the Marine Corps can replicate. The first iteration training load calculation was a historic relationship of load to input.

2. Evaluation of Algorithms

This section evaluates the algorithms for Recruit Training and Initial Skill Training.

a. Recruit Training

The calculation of training load is slightly different for each Service. A basic calculation should include those variables which contribute to variable manpower and exclude the remainder. The inclusion of "non-training" time may in some cases be necessary where there is a manpower requirement. An assumption is that both recycle and in-processing increase the length of training.

The following variables apply to all Services and appear necessary to calculate training load:

- Input to Recruit Training - which may be defined as accessions during the fiscal year. The Army varies from this by using a delay factor to compensate for year-end carryover and adds a recycle rate of 7%. The Marine Corps includes accessions already present at start of the year.

- Output from Recruit Training - is graduates during the fiscal year. Army, Navy, and Air Force equations assume inputs graduate during the year of entry. Marine Corps counts graduates when they occur within their cohort.
- Attrition - is losses occurring during the course usually assumed as evenly distributed throughout the period. Only the Marine Corps separately calculates "attrites" with a "mean time to attrition." All Services use this definition except Air Force which says it equals recycles.
- Recycle - a factor that is separately identified only by the Army as 7%. Although Air Force says the rate is 7%, it is not used since it equals an attrition rate of 7%. Navy and Marine Corps include it in course lengths.
- Course length - the Army uses curriculum length, Air Force adds 4% for waiting time, the Navy and Marine Corps add processing or administration time, recycle and waiting time.
- Waiting time - awaiting entry to training, may or may not include processing in, fill time, and pure "waiting" such as weekend or holiday.

Using each Service model, a set of calculations for FY81 are derived below for training load (Active NPS). The calculated answers are those given in the FY81 budget estimates except for the Marine Corps which is an approximation.

Army:

$$\frac{\text{Input}^4/ + \text{Output}^4/}{2} \left(\frac{\text{Course Length in Weeks}^5/}{50 \text{ Weeks in Year}^6/} \right)$$

$$\frac{68219 + 62019}{2} \left(\frac{7}{50} \right) = 9117$$

Navy:

$$\text{Accessions} \left(\frac{2 - \text{Loss Rate}}{2} \right) \left(\frac{\text{Course Length in Days}^7/}{365 \text{ Days}} \right)$$

$$91544 \left(\frac{2 - .085}{2} \right) \left(\frac{61}{365} \right) = 14649$$

Air Force:

$$\text{Accessions} \times \text{Waiting Time} \left(\frac{\text{Course Length in Weeks}^8/}{52 \text{ Weeks in Year}} \right)$$
$$71000 \times 1.04 \left(\frac{6.19}{52} \right) = 8790$$

Marine Corps: An approximation for Male NPS--

$$\text{Accessions } (\% \text{ completing}) (\text{Mean Time to Graduation in Days} \div 365) + \text{Accessions } (\% \text{ Attrition}) (\text{Mean Time to Attrition in Days} \div 365)$$
$$38100^9/ (.88) \left(\frac{80}{365} \right) + 38100^9/ (.12) \left(\frac{50}{365} \right) = 7975^{10/}$$

- It is apparent that no Service uses the same precise formula as another. Assurance of OSD ability to make comparisons across Services requires a consistent general formula with precisely defined variables. In section B.3. below we will provide a recommended general formula with precisely defined variables. This formula may be used by OSD to calculate training workload for Recruit Training. The general formula is a combination of the best features from all Services.

b. Initial Skill Training

The calculation of training load and workload varies among Services. The workload calculation would appear to be the pertinent one since it includes the totality of work performed for which instructors and other support manpower is needed. The pertinent variables apply to Initial Skill Training as they did to Recruit Training. They are as follows:

- Input to Initial Skill Training - this includes non-prior service and prior service Active and Reserve component inputs for both training load and workload. This may equate to Recruit Training output less OJT and other service training for workload calculations. Additionally, workload will include other Service persons, retrainees, civilians, and foreign nationals.

- Output from Initial Skill Training - is input less attrition. This appears to be correct for Army and Navy. The Marine Corps factors a previous output number based on Recruit Training output. The Air Force calculation is more complex as it starts with inputs and adds retrainees and those awaiting instruction.
- Attrition - is not specifically identified by Army or Marine Corps. The Navy uses a separate factor for each course and sums the total. The Air Force uses 6% which includes the estimated impact of course changes.
- Recycle factor - is specifically identified by Army as 7%, no other Service uses it except as part of course length.
- Course length - is the average pipeline time which is the weighted sum of all courses.
- Waiting time - awaiting entry to training is used by the Air Force and is included by the Navy in course length.

Service models are used below to derive FY81 workload:

Army:

$$\text{Workload} = \frac{\text{Input}^{\frac{11}{11}} + \text{Output}^{\frac{12}{12}}}{2} \left(\frac{\text{Course Length in Weeks}}{50} \right)$$

$$\frac{131,266 + 114,765}{2} \left(\frac{9.52^{\frac{13}{13}}}{50} \right) = 23,392$$

Air Force: Training Load

$$\text{Load} = (\text{Active Input}) \left(\frac{\text{Course Length in Weeks}}{52} \right) (\text{Attrition}) +$$

Awaiting Instruction + Reserves

$$(67108) \left(\frac{11}{52} \right) (.94) + 1338 + 1322 = 16,004$$

Navy: Training Load/Workload using TRM

$$\text{Load} = \frac{\text{Input}^{14/} + \text{Output}^{15/}}{2} \left(\frac{\text{Length of Pipeline}^{16/}}{365} \right)$$

Ex. HT PIPELINE (This calculation is repeated for all 89 ratings and then summed for total loads.)

$$\frac{1740 + 1655}{2} \left(\frac{92.6}{365} \right) = 432$$

Marine Corps:

$$\text{Load} = \frac{\text{Input} + \text{Output}}{2} \left(\frac{\text{Course Length}}{365} \right)$$

The Input and Output figures are factored from previous numbers and the training load is similarly derived. The Course Length is derived from load, input and output.

$$\frac{46365 + 42674}{2} \left(\frac{x}{365} \right) = 6996 \quad x = 57.36 \text{ days}$$

This does not give the "pipeline" course length but only an average length of a single course. Pipeline course length is approximately 86 days (see Section II.E.2).

- It is apparent that no Service uses the same precise formula as another. Assurance of OSD ability to make comparisons across Services requires a consistent general formula with precisely defined variables. In section B.3. below we will provide a recommended general formula with precisely defined variables. This formula may be used by OSD to calculate training workload for Initial Skill Training. The general formula is a combination of the best features from all Services.

3. Recommended Models

So as to assure a consistent comparison across Services of training load and workload, it is necessary to use common terms with definite meanings. The following formulas and definitions are recommended by MCR for OSD use in assessing Service requirements.

a. Recruit Training

The following general formula and definitions are recommended for Recruit Training load calculations for each Service by OSD.

$$\text{Training Load} = \frac{\text{Input} + \text{Output}}{2} \times \frac{\text{Course Length in Days}}{365} \text{ (Recycle Factor)}$$

- Input is equal to NPS Active accessions, Reserve Component inputs, and prior service inputs (where required).
- Output is input less attrition.
- Course length is number of calendar days in the course plus "other trainee days." "Other trainee days" are defined as processing and fill time as well as waiting time. Waiting time is included because all Services assign trainees to a company sized unit immediately upon arrival and this requires supervision by Drill Instructors. Calendar days is the curriculum plus weekend and proportionate holidays.
- Recycle factor is the average rate based on an average midpoint attrition. It may be applied as added days to course length or directly to inputs as indicated below.

Different factors must be used for each Service to account for variations in Service personnel and training programs. The factors for each Service follow:

- Army
 - Input is Active and Reserve NPS.
 - Output is Input less attrition of 8.9% for Basic Training and 14.8% for OSUT. 55% of accessions go to OSUT and 45% go to Basic Training.
 - Course length is 49 calendar days for Basic Training and 92 days, as a weighted average, for OSUT.
 - Recycle factor is 7% for both courses to be applied to input.
- Air Force
 - Input is Active and Reserve NPS.

- Output is input less attrition of 7%.
- Course length is 44 calendar days (32 training days, no training on weekends or holidays).
- Recycle factor is 7% to be applied to input.
- Navy
 - Input is Active and Reserve NPS and approximately 40% of "Other Service" prior service personnel.
 - Output is input less 7% attrition for NPS and 1% prior service.
 - Course length is 61 calendar days. 53.9 days for curriculum, 7.1 other days which include recycles.
 - Recycle factor is contained in course length.
- Marine Corps
 - Input is Active and Reserve NPS.
 - Output is input less 12% attrition for males and 14% for females.
 - Course length is 80 calendar days for males and 60 calendar days for females for graduates and 50 days and 40 days, respectively, for attrites. This provides an adjusted course length of 81.3 days for males and 52.3 days for females.
 - Recycle factor is contained in course length.

b. Initial Skill Training

The following general formula and definitions are recommended by MCR for Initial Skill Training load calculations for each Service by OSD.

$$\text{Workload} = \frac{\text{Input} + \text{Output}}{2} \times \frac{\text{Course Length in Days}}{365}$$

- Input would be Active and Reserve Recruit training output less those trainees assigned directly to units or sent to other Services for training. Also included are other Service trainees received for training.
- Course length is the "average weighted pipeline course length." This means that where more than one course is included in Initial Skill Training to complete the skill training, it will be treated as a single "pipeline" for the trainee.

- Output is input less attrition.
- Recycle is the average rate based on an average mid-point attrition. It may be applied to course length or directly to inputs as indicated below.

Different factors must be used for each Service to account for variations in training programs and attrition rates. The factors for each Service follow:

- Army - input is equal to Recruit Training output less Army trainees sent to other Services plus other Service trainees. For FY81, 2.3% of Army Recruit Training graduates are programmed for Other Service Initial Skill Training and 3.7% of inputs to Army Initial Skill Training are from other Services. Input includes medical training.^{17/}
 - Attrition is 7.5%.
 - Recycle factor is 7%.
 - Course length is 9.52 weeks, which is average weighted course length.
- Air Force - input is equal to Recruit Training output less Air Force trainees to other Services plus other Service trainees. For FY81 it is estimated that 3% of Air Force Recruit Training graduates go to Initial Skill Training in other Services. 4.8% of inputs to Initial Skill Training are from other Services.
 - Attrition is 6%.
 - Recycle factor is included in course length.
 - Course length is 11 weeks, which is average weighted course length.

Note: The Air Force includes waiting time separately.
Also includes 6,000 retrainees as input.

- Navy - input equals recruit output: Active 72.3% go to "A" School and 27.7% to Apprentice School, all Reserves (USNR-R) go to "A" School.
 - Attrition is 17% for "A" School and 1% for Apprentice School.
 - Navy recycles are contained in course lengths.
 - Course length is 21.3 days for Apprentice School, not yet available for "A" School.

Note: 12% of "A" School input is from the fleet.

- Marine Corps - input is 75% of Recruit Training graduates.
 - Attrition is 8% and includes recycles.
 - Course length is calculated as 86 days for the "pipeline."
 - Recycle factor is included in the attrition factor.

C. MANPOWER ALGORITHMS

This section provides descriptions of how each Service calculates manpower for Recruit and Initial Skill Training, evaluates them, and recommends models for OSD use.

1. Description

a. Recruit Training

(1) Army

(a) HQ DA Model.

There is no HQ Model for calculating manpower requirements; the staff reviews TRADOC submissions.

(b) HQ TRADOC Model for Basic Training

- Brigade Manpower = Brigade Staff (54)
 - + Battalion Staffs (15 each)
 - + Company Staffs (18 each)
 - + BCT Committee Group (220)
 - Battalion staff is one per four companies.
 - Companies are calculated as one per average load of 200 trainees and thus, total workload divided by 200 yields this number
- Brigade Manpower = $274 + \frac{\text{Total Workload}}{800} \times 15 + \frac{\text{Total Workload}}{200} \times 18 = 274 + \text{Workload} (.10875)$

- Manpower for Recruit Training is determined through structural analysis using the training company as the basic structure block on the basis of 200 workload per company and adding special subject instructors on the basis of instructor contact hours. Because of the inherent capability of battalions to manage from 3 to 5 companies, and brigades to manage 3 to 5 battalions, manpower requirements must be computed on a post-by-post basis in accordance with the following ranges of workload:

1500 - 5000 = 1 brigade

Over 5000 = 2 brigades

- Accordingly, an additional brigade staff of 54 must be added to Fort Jackson which requires two brigades. Forts Dix, Knox, Leonard Wood, and McClellan each have one brigade since their average workload is under 5000. There are no Basic Training brigade headquarters at Fort Bliss or Fort Sill where workload is under 1000. The instructor group at Fort Sill is charged to OSUT.
- Brigade staff is 54 (14 officers, 34 enlisted, 6 civilians) consisting of the administrative support for the attached battalions.
- Battalion staff is 15 (3 officers, 12 enlisted) consisting of the administrative support for the attached companies. There is normally one battalion for every four companies, although there may be three to five companies assigned. The formula for battalion staff is workload (as computed under TRADOC formula) \div 800 (average workload in the four companies of 200 each) \times 15.
- Company staff is 18 military (2 officers, 16 enlisted) consisting of 12 drill sergeants and 6 others per company. There is one company required for each 200 workload.
- Basic combat training committee groups provide combat instruction and designated general subjects training. One group is authorized for each training center conducting basic training. Authorized strength is 221 based on weekly trainee input of one through six class starts per week. At posts which conduct both Basic Training and OSUT, the instructor group(s) may serve both modes and be charged to the larger user.
- Workload. The model applies the TRADOC workload formula: $W/L = \text{Input} \times \frac{\text{Course Length in Weeks}}{50}$

- Use of TRADOC model. The model displayed has been constructed based on the TRADOC process for determining total manpower for Recruit Training. However, for all practical purposes, changes in workload require changes only in companies and battalions.

(c) HQ TRADOC Model for One Station Unit Training

- Brigade Manpower = Brigade Staff (Varies in size--10 locations)
+ Battalion Staffs (18)
+ Company Staffs (16)
+ Training Committee Group (Varies in size at each location)
- Brigade Manpower = Brigade Staff + Training Committee Group + $\frac{\text{Total Workload}}{800} \times 18 + \frac{\text{Total Workload}}{200} \times 16 = \text{B.S.} + \text{T.C.G.} + \text{Workload (.1025)}$
- Manpower for OSUT, as in Basic Training, is actually determined through structural analysis; that is, the number of companies required to train a certain input. However, because of the OSUT concept of combined Basic and MOS Training, there may be different applications of the formulas at different posts.
- A further complication is the variation in course lengths. At Fort Gordon, for example, a company may have two platoons of trainees in a 13 week OSUT, two in 14 week courses, and one in a 16 week course. The company cannot start a new cycle until the 16 week platoon has graduated. OSUT has some built-in inefficiencies with low density MOSS. The problem is delayed starts awaiting company fill.

(2) Air Force

(a) HQ USAF Model

$$\Delta \text{ Number of Instructors} = \frac{\Delta \text{ Student Load} \times \text{Instructors Per Flight}}{\text{Average Load per Flight}}$$

$$\Delta \text{ Number of Instructors} = \frac{\Delta \text{ Student Load} \times 3.2168}{47.5}$$

- Δ Instructors represents changes in instructors only. Training staff, other than instructors, is considered relatively fixed and not changed with normal fluctuations in training load.
- Δ Student load is the change in Active Air Force training load. (This is trainees, although Air Force uses the generic term "students.")
- Instructors per flight is computed as 3.2168.
- Average students per flight is 47.5.
- Air Force uses projected changes in student load to adjust enlisted manpower in the POM and Budget chargeable to PE 84711F.

(b) Air Training Command Model^{18/}

Δ Training Instructors = Δ Flights x Training Instructors per Flight
 Δ Academic Instructors = Δ Flights x Academic Instructors per Flight

- Δ Instructors: separate per flight factors are used for Training Instructors (TI) 2.5196 and Academic Instructors (AI) - .6972. If the TI and AI are added, the factor is 3.2168, the same as used by HQ USAF.
- Δ flights is Δ student load \div by 47.5 students per flight.
- The model provides a means of differentiating types of instructors.

(3) Navy

- Navy Recruit Training manpower is calculated by OP-120E by use of the Training Resources Model (TRM). TRM uses a formula developed by NAVMACLANT which describes the relationship between recruit input and instructors and direct student support. This formula is: Intercept = 422.44
Slope = 0.011173
- The Intercept is the constant in the equation and the Slope is the independent variable. Male and female Recruit Training manpower are computed separately.
- The procedure is as follows:
 - Male Recruit Training:
$$\text{Intercept} = 422.44 \times \frac{\text{Male Recruit Input}}{\text{Total Recruit Input}}$$

Instructor and Direct Student Support = Intercept
+ 0.011173 x Male Recruit Training Load

Step (1) factors the constant term for the male portion of the input and Step (2) applies the variable factor to the applicable training load.

- Female Recruit Training:
Steps (1) and (2) repeated with female recruit input and training load.
- Total Navy Recruit Training manpower is the sum of male and female Recruit Training manpower.

(4) Marine Corps

- The Marine Corps has no models or algorithms for USMC Headquarters use.
- Survey teams use the ITRO formula at base level.
 - Instructor manhours per class x scheduled # of classes = annual manhour requirements.
 - Annual Manhour Requirements = Total Instructor 1250 Hours per Instructor Requirements.
- Actual training manpower is included in the Tables of Organization (T/O) of the units performing the training.

b. Initial Skill Training

(1) Army

(a) HQ DA Model

There is no HQ DA Model, the staff reviews TRADOC submissions.

(b) HQ TRADOC Specialized Skill Training Models

- TRADOC has developed composite models for General Skill Training in Army Training Centers (ATC) and for Army Schools. These models are in the form of:

Manpower = Fixed Base + Variable Factor x Workload (WL)

- Composite for Schools: Manpower = 7075 + .197 WL
- Composite for ATCs (Bliss, Jackson, and Leonard Wood): Manpower = 1100 + .180 WL

- Manpower is determined separately for each school, and for those training centers which have significant workloads. It must be noted that the formulas apply to all of General Skill Training conducted at each post with the exception of Drill Sergeant schools and NCO academies for which separate factors have been developed. Manpower is not differentiated by category of training within the generic grouping of Specialized Skill Training.
- Fixed Base is the number required for each ATC and school, based on analysis of historical data adjusted for mission changes. Fixed Base is validated within a specified workload range at each location. The Fixed Base includes consideration of workloads generated by the average number of casualties including students and trainees awaiting course start and course graduates awaiting reassignment.
- Variable Factor is a separate factor for instructor personnel required per unit of workload at each school.
- These factors are based on analyses of individual Programs of Instruction (POI) and consider instructor contact hours per class and optimum class size. The standard of 1250 instructor contact hours per instructor applies.

Workload (WL): TRADOC formula is
$$WL = \frac{\text{Input} \times \text{Course Length in Weeks}}{50 \text{ Weeks in a Year}}$$

- The TRADOC model can be used for programming manpower against projected workloads, and as an independent check against a manpower program developed in another manner. The variable portion is used to assess changes in manpower associated with total changes in Specialized Skill Training workload. TRADOC has not developed a separate model for Initial Skill Training since the fixed base serves both students and trainees. Accordingly, the variable factor is a composite for all General Skill Training and may not be as valid if applied only to Initial Skill Training.
- TRADOC models are also developed for General Intelligence Skill Training:

Manpower = 352 + .234 x W

and for CRYPTOLOGIC/SIGINT Related Skill Training:

Manpower = 486 + .237 x W

- The Army models shown above are in the September 1978 TRADOC Resource Factors Handbook which was used for the 1979 TRM review and as input to HQ DA for the FY-81 budget estimate. The factors have since been revised based on additional data inputs and are documented in the 1979 TRADOC Resource Factors Handbook.

(2) Air Force

The Air Force model for Initial Skill Training is:

- $\Delta \text{ Instructors} = \frac{\Delta \text{ Workload} (\text{Instructors per Group})}{\text{Normal Group Size}}$
- $\Delta \text{ Instructors} = \frac{\Delta \text{ Workload} (2.293)}{11.9}$
- $\Delta \text{ Instructors} = \text{Changes only; basic staff other than instructors is considered fixed and relatively stable.}$
- $\Delta \text{ Workload} - \text{Changes in all student input should be considered. However, the Air Force uses only changes in Active Air Force trainees since changes in other sources of Initial Skill Training loads are not considered significant.}$
- Instructors are calculated as 2.293 per group.
- Average group size is 11.9.
- Changes in manpower programmed for Initial Skill Training in POM and budget estimates are generally based on this model.

(3) Navy

Manpower for Navy "A" School and Apprentice School is determined through use of the Training Resource Model (TRM). The current description of TRM as presented by Resource Consultants, Inc., (TRM contractor for OP-120E) contains the following description of training manpower determination.

- FY79 is used as the base year. When the calculated training workload for an "A" School pipeline is less than FY79 workload, Instructors and Direct Student Support will be based upon 60% of the difference between the calculated training workload and the FY79 training workload. The general formula is:

$$\text{Manpower} = (.60 \times \Delta \text{ Workload}) \times \frac{\text{Base Year Manpower}}{\text{Base Year Workload}} + \text{Base Year Manpower}$$

- When the calculated training workload is more than FY79 workload, the formula becomes:

$$\text{Manpower} = (1.0 \times \Delta \text{ Workload}) \times \frac{\text{Base Year Manpower}}{\text{Base Year Workload}} + \text{Base Year Manpower}$$

- Both of these formulas apply to Apprentice School as well as "A" School manpower determination.

(4) Marine Corps

- The Marine Corps has no models or algorithms for USMC Headquarters use.
- Survey teams use the ITRO formula at base level.
 - Instructor manhours per class x scheduled # of classes = annual manhour requirements.
 - Annual Manhour Requirements $\frac{1250 \text{ Hours per Instructor}}{\text{Requirements}}$ = Total Instructor Requirements.
- Actual training manpower is included in the Tables of Organization (T/O) of the units performing the training.

2. Evaluation of Algorithms

This section evaluates the algorithms for Recruit Training and Initial Skill Training.

a. Recruit Training

The determination of manpower in support of training is different for each Military Service. The Army and Air Force base their calculations on the training unit (company or flight) while the Navy formula uses a more general approach. The Marine Corps uses the unit Table of Organization as the source of training manpower numbers and changes are made only by survey teams or as changes in schools require them out of cycle.

- To summarize the earlier descriptions, the Service formulas are:
 - Army:

$$\text{Manpower} = \text{Brigade Staff (54)} + \text{Battalion Staff} \\ \left(\text{Workload} \times \frac{15}{800} \right) + \text{Company Staff} \left(\text{Workload} \times \frac{18}{200} \right) + \text{BCT Committee Groups.}$$
 - Navy:

$$\text{Manpower} = 422.44 \text{ (constant)} \times 0.011173 \text{ Workload.}$$
 - Air Force:

$$\Delta \text{ Instructors} = \frac{\Delta \text{ Student Load} \times \text{Instructors p/Flight (3.2168)}}{\text{Average Load per Flight (47.5)}}$$
 - Marine Corps:

There is no model, USMC survey teams use the ITRO formula.
- The Army and Air Force formulas make logical use of the basic variable element which is the company or flight.
- A similar concept can be developed for the Marine Corps using the "series" which is their variable element.
- The Navy formula does not utilize the same concept and appears not to take into account all Navy variable manpower, i.e., instructors. The Navy FY81 Budget shows 1083 enlisted instructors, the figures for previous years are approximately in that range also. Since the Navy variable element is the company, it appears that there are approximately four instructors per company at the peak (250 companies are capable of handling the peak of 19,000). The Navy variable factor of $0.011173 \times \text{workload}$ allows only 171 total instructors which appears to be illogical. For example, a constant load of 83 trainees (the maximum in a company) requires at least two Drill Instructors. Using the Navy factor we get: $83 \times 0.011173 = .93$.
- A formula using the Headquarters Air Force concept of variable manpower per variable training unit appears to be a logical and consistent manner of assessing manpower resources for Recruit Training. A general formula with recommended factors for OSD use is provided in the next section.

b. Initial Skill Training

Each Service determines Initial Skill Training manpower differently. The Army uses separate manpower formulas for schools, training centers, and intelligence training. The Air Force and Navy use single formulas based on changes in workload; Air Force from the prior year and Navy from an FY79 base. There is no USMC formula. The Service formulas are:

- Army (1978 TRADOC formulas used for FY81 Budget):
Manpower = Fixed Base + Variable Factor \times Workload (W)

- Composite for schools (excludes medical and intelligence):

$$\text{Manpower} = 7075 + .197 W$$

- Composite for training centers:

$$\text{Manpower} = 1100 + .180 W$$

- General Intelligence Skill Training:

$$\text{Manpower} = 352 + .234 W$$

- CRYPTO/SIGINT Skill Training:

$$\text{Manpower} = 486 + .237 W$$

- Air Force (HQ USAF and ATC formula):

$$\Delta \text{Instructors} = \frac{\Delta \text{Workload} \times \text{Instructors per Group (2.293)}}{\text{Normal Group Size (11.9)}}$$

- Navy (OPNAV - Training Resource Model)

- For decreasing workload from base year:

$$\text{Manpower} = (.60 \times \Delta \text{Workload}) \times \frac{\text{Base Year Manpower}}{\text{Base Year Workload}} + \text{Base Year Manpower}$$

- For increasing workload, the factor .60 is not used:

$$\text{Manpower} = \Delta \text{Workload} \times \frac{\text{Base Year Manpower}}{\text{Base Year Workload}} + \text{Base Year Manpower}$$

- **Marine Corps:**
There is no formula, USMC survey teams use the ITRO formula.
- A general formula using the Army, Air Force, and Navy factors and the Air Force general model, is recommended for use by OSD. The formula and factors are provided in the next section. Both the Army and Navy have a variable manpower feature similar to the Air Force model. In the absence of a Marine Corps formula, factors were developed for application to the recommended formula.

3. Recommended Models

The following formulas are recommended by MCR for OSD use in assessing Service requirements for training manpower.

a. Recruit Training

The following general formula is recommended for use by OSD in assessing the manpower required for Recruit Training:

$$\Delta \text{ Manpower} = \frac{\Delta \text{ Workload}}{\text{Optimal Trainees per Variable Training Unit}} \times \frac{1}{\text{Manpower per Variable Training Unit}}$$

Different factors must be used for each Service to allow for differences in variable training unit organization.

- **Army:**

$$\Delta \text{ Officer Manpower} = \frac{\Delta \text{ Workload}}{200 \text{ (company)}} \times 2$$

$$\Delta \text{ Enlisted Manpower} = \frac{\Delta \text{ Workload}}{200 \text{ (company)}} \times 16$$

Additionally, in the Army each full thousand Δ workload will require a change in battalions \times 15 (3 officers, 12 enlisted).

- **Air Force:**

$$\Delta \text{ Enlisted Manpower} = \frac{\Delta \text{ Workload}}{47.5 \text{ (Flight)}} \times 3.2168$$

- Navy:

$$\Delta \text{ Enlisted Manpower} = \frac{\Delta \text{ Workload}}{70 \text{ (company)}} \times 4$$

- Marine Corps:

$$\Delta \text{ Officer Manpower} = \frac{\Delta \text{ Workload}}{260 \text{ (series)}} \times 2$$

$$\Delta \text{ Enlisted Manpower} = \frac{\Delta \text{ Workload}}{260 \text{ (series)}} \times 13$$

- The above formulas were based on the Air Force concept which is expressed by the general formula shown at the beginning of the subsection. The manpower number per company, flight, or series is the figure provided by each Service as the number of supporting instructors per company sized element. Only in the case of the Army is the next larger organization considered as a variable.

b. Initial Skill Training

The following general formula is recommended for use by OSD in assessing the manpower required for Initial Skill Training:

$$\Delta \text{ Manpower} = \Delta \text{ Workload} \times \text{Manpower per Workload}$$

Different factors must be used for each Service to allow for differences in training. We have provided those currently used by the Army, Air Force, and Navy as appropriate. It was necessary for MCR to develop Marine Corps factors.

- Army:

- It is first necessary to distribute the workload calculated for total Initial Skill Training in the following manner:

Schools	.595
Training Centers	.241
General Intelligence	.017
CRYPTO/SIGINT	.026
Medical ¹⁹	<u>.121</u>
Total Workload	1.000

- Total Schools:
Manpower = 7109 + .223 workload
- Total Training Centers:
Manpower = 523 + .157 workload
- Total General Intelligence Skill Training:
Manpower = 396 + .187 workload
- Total CRYPTO/SIGINT Skill Training:
Manpower = 559 + .252 workload
- These equations have been recently updated and are documented in the 1979 TRADOC Resource Factors Handbook. They were developed following an installation by installation analysis of organizations, staffing and workload by Headquarters, TRADOC. The factors are related to workload produced by the TRADOC Workload model. Some later modification of the factors might be required if workload calculations are changed substantially.
- The only part usable for Initial Skill Training is the variable part. The fixed portion performs support for other categories of training as well. The formulas for changes in workload are provided below:

PE 84731A: Schools: Δ Manpower = .223 \times Δ Workload

Centers: Δ Manpower = .157 \times Δ Workload

$$\text{Total } \Delta \text{ Manpower (weighted)} = \frac{.223(.595) + .157(.241)}{.595 + .241} = .204 \times \Delta \text{ Workload}$$

PE 84733A: Δ Manpower = .187 \times Δ Workload

PE 84734A: Δ Manpower = .252 \times Δ Workload

- Air Force. This formula is used by the Air Staff:
 Δ Instructors = $\frac{\Delta \text{ Workload} \times \text{Instructors p/Group}}{\text{Normal Group Size}} (2.293)$
- Navy. This formula is taken from the TRM as currently used by OPNAV for "A" Schools and Apprentice Schools:
 - Δ Manpower = .60 \times Δ Workload \times $\frac{\text{Base Year Manpower}}{\text{Base Year Workload}}$
 - The formula applies to a decrease in workload from the base year. For a year with an increase, the factor .60 does not apply.

- Marine Corps. This formula was developed by the study team for OSD use:
 - Officer Manpower = .01584 Officers x Training Load
Enlisted Manpower = .11540 Enlisted x Training Load
 - The formula is based upon the FY79 variable support (instructors) of 1,566 and a total training load of 11,932 contained within Specialized Skill Training (source: FY81 Budget Estimate Exhibit OP-14).
 - In an effort to narrow the formula to just enlisted Initial Skill Training, a relationship or ratio between Specialized Skill Training workload and USMC instructors in Marine Corps Schools can be used for PE 84731M (all other training is conducted outside Marine Corps Schools).

$$\frac{\text{Officer Instructors}}{\text{Specialized Skill Training Workload}} = \frac{105}{7597} = .01382$$

$$\frac{\text{Enlisted Instructors}}{\text{Specialized Skill Training Workload}} = \frac{655}{7597} = .08622$$

Since enlisted Initial Skill Training workload is 4583, or 60% of the total, the factors would appear to be most appropriate where the change is in workload rather than training load.

- Using the formulas given above, a set of calculations for FY81 were derived below for Initial Skill Training.

Army:

$$\text{PE 84731 } \Delta \text{ Manpower} = .204 \times \Delta \text{ Workload}$$

$$\text{FY79 Workload} = 18742^*$$

$$\text{FY81 Workload} = 19450^*$$

$$\Delta \text{ Workload} = +708$$

$$\Delta \text{ Manpower} = .204 \times (+708) = +144$$

$$\text{Manpower Actual Change FY79 to FY81} = 8605 \text{ to } 8736 = +131^*$$

*Factored as percentage of total Specialized Skill Training.

Source: FY81 Army preliminary budget estimates.

Navy:

PE 84731 Initial Skill Training

$$\Delta \text{ Manpower} = .6 \times \Delta \text{ Workload} \times \frac{\text{Base Year}^* \text{ Manpower}}{\text{Base Year}^* \text{ Workload}}$$

$$\frac{\text{FY79 Manpower}}{\text{FY79 Workload}} = \frac{5686}{27700} = .2053$$

$$\text{FY81 Workload} = 27492$$

$$\frac{\text{FY79 Workload}}{\text{FY79 Workload}} = \frac{27700}{27700}$$

$$\Delta \text{ Workload} = -208$$

$$\Delta \text{ Manpower} = .6 \times (-208) \times .2053 = -26 \text{ enlisted}$$

$$\text{Actual } \Delta \text{ Manpower} = 5686 \text{ to } 6224 = +538 \text{ enlisted}$$

$$\text{FY79 to FY81}$$

*FY79 used as base year by Navy.

Source: FY81 Navy Budget Exhibit OP-14.

Air Force:

PE 84731

$$\Delta \text{ Instructors} = \frac{\Delta \text{ Workload} \times \text{Instructors per Group (2.293)}}{\text{Group Size (11.9)}}$$

$$\text{FY80 Workload} = 13979$$

$$\text{FY81 Workload} = \underline{14040}$$

$$\Delta \text{ Workload} = +61$$

$$\Delta \text{ Instructors} = \frac{61 \times 2.293}{11.9} = +12$$

$$\text{Actual } \Delta \text{ Manpower} = 6802 \text{ to } 6770 = -32$$

$$\text{FY80 to FY81}$$

Source: FY81 Air Force Budget Exhibit OP-14.

Marine Corps:

PE 84731

$$\Delta \text{ Instructors} = \Delta \text{ Training Load} \times .11540 \text{ enlisted}$$

$$\text{FY79 Training Load} = 11932$$

$$\text{FY81 Training Load} = \underline{12142} .$$

$$\Delta \text{ Training Load} = +210$$

$$\Delta \text{ Instructors} = 210 \times .11540 = +24 \text{ enlisted}$$

$$\text{Actual } \Delta \text{ Manpower} = 3411 \text{ to } 3683 = +272 \text{ enlisted less}$$

$$\text{FY79 to FY81} \quad \text{non-instructional add-ons of 182} =$$
$$+90 \text{ enlisted}$$

Source: FY81 Marine Corps Budget estimate (Sept. 1979).

D. TRAINEE END STRENGTH ALGORITHMS

This section describes Service methods for calculating Trainee end strength, evaluates those methods and discusses problems associated with overall model development.

1. Description

a. Army

- Total Trainee End Strength is produced by the Active Army Manpower Program through inventory projection of personnel for the last day of each month. The projection for 30 September is the end strength which appears in the FYDP. These projections are related closely to the schedule of NPS accessions, attrition rates, and the length of time NPS enlistees spend in trainee status. The program considers planned mode of training (Basic/AIT vs OSUT) and recycles. Reported end strength (historical data) is the by name count of personnel who were in trainee status at the end of a prior period.
 - Program Element Trainee Workload - This is the workload programmed for each PE attributed to trainees. It is separately computed under the current Army workload formula.
 - Total Trainee Training Load includes trainee workload in Army training facilities plus workload in non-Army facilities.
- End Strength by Program Element (PE) represents actual active duty trainees expected to be in pay status on the last day of the fiscal year chargeable to the PE activity. Trainees projected to attend Defense Mapping School, and schools of other Services on 30 September, are pro-rated to Army PE accounts. The following formula is applied:
 - Trainee End Strength by Program Element = Total Trainee End Strength x Program Element Trainee Workload ÷ Total Trainee Training Load.

b. Air Force

The Air Force uses a different formula for each category of initial entry training as shown below:

● Recruit Training:

Trainee End Strength = Trainee Training Load plus Trainees in Travel Status (Waiting Time).

The Air Force training load formula, as described above, includes a factor for waiting time. It does not separately account for attrition losses or re-cycles which are considered to be offsetting by the Air Force.

● Initial Skill Training:

Trainee End Strength = NPS Input + .25 (Prior Service Input + Retrainees) x Average Weighted Course Length
52
x Completion Percentage + Average Number Trainees Awaiting Training.

- This formula is a modification of the formula for Initial Skill Training load in that it considers .25 of combined prior service and retrainees input to be "trainees," and uses a 10.8 week weighted course length vs 11 weeks used in the training load formula. It captures all Air Force trainees including those being trained by other Services.

c. Navy

● Recruit Training:

The Navy uses the latest actual relationship between trainee training load and end strength to project active trainee end strength for PE 84711 Recruit Training in the FYDP. As an example, the program for FY80 and 81 is shown below for PE 84711 (source: FY81 Budget/FYDP):

	<u>FY80</u>	<u>FY81</u>
Trainees	26013	25303
Training Load	15390	14972
Ratio	1.69	1.69

- Initial Skill Training:

For Initial Skill Training the Navy uses the projected Initial Skill Training load as the projected end strength for trainees. Exhibit A-4 of the FY81 Budget explains this as follows:

	<u>FY80</u>	<u>FY81</u>
Total Active Enlisted Load	31350	34178
Less TDY Loads (Training)	<u>6740</u>	<u>7348</u>
Net*	24610	26830
Trainee/Student End Strength	30523	32404

*The load represents PCS personnel less super-numerary status (awaiting training) which is included in the end strength.

d. Marine Corps

- Recruit Training:

Trainee end strength is calculated by the Recruit Training Model based on recruits in training at end year. This is not a formula but a precise month by month calculation. It could be approximated by a formula based on a projection of accessions.

- Initial Skill Training (PE 84731M):

Trainee end strength is calculated based on a five year average ratio of training load to end strength, or, load times 1.02 = end strength, plus known changes for new schools such as ITS and AMTRAC.

Example:

	<u>FY80</u>	<u>FY81</u>
Training Load	7267	6849
x 1.02	7412	6986
+ ITS/AMTRAC	213	222
End Strength	7625	7208

2. Evaluation of Algorithms

a. General

Active service enlisted trainee status has been defined by OSD as shown below:^{20/}

RESOURCE IDENTIFICATION CODE DEFINITION

TRAIINEES

	<u>End Strengths - Memo Non-Add</u>			
	<u>Army</u>	<u>Navy</u>	<u>Marine Corps</u>	<u>Air Force</u>
Active Service Enlisted Trainees	0135	0136	0137	0138

Enlisted trainees comprise that active duty enlisted strength which has not completed initial entry training. Enlisted initial entry training includes Recruit Training, Initial Skill Training, and any other form of proficiency training accomplished prior to commencing movement to the member's first permanent duty station. Enlisted trainee strength also includes all in-transit time commencing upon entry into active service through completion of the final course of initial entry training which terminates enlisted trainee status. Personnel destined for Officer Candidate School but in Recruit or Initial Skill Training will be counted as enlisted trainees.

Excludes:

Reserve Component personnel temporarily on active duty for recruit or other training provided by the active forces who are not counted as part of active strength.

- This definition implies that trainee end strength is the number of trainees projected to be on active duty on the last day of the fiscal year. It does not imply that end strength is the same as average strength. This is consistent with end strength for personnel in status other than trainees.
- End strength derivations may include estimates where data requirements are not supported by personnel accounting systems. This relates to the problem of differentiating trainees and students. It is not clear, however, whether the authority to estimate applies to the total number in trainee and student status or merely to the split between these categories.

- In any event, neither the total active enlisted trainee end strength nor the distribution of trainee end strength to program elements are projected in the same way by all Services.
- Service Methods of Deriving Trainee End Strength:

Service	Projection of Actual Trainee Strength	Trainee Training Load	Trainee Training Load Factored	Trainee Training Load and Supernumeraries
Army	X			
Air Force		X		
Navy				
-Recruit Tng			X	
-Skill Tng				X
Marine Corps				
-Recruit Tng	X		X	
-Skill Tng				

- End Strength Distribution to Program Elements (PEs)
 - Army:

All PEs: Proportionate to PE Trainee Workload
 \div Total Trainee Load.
 - Air Force:

Recruit Training: Equal to Training Workload
 General Skill Training: (NPS Input + .25 Prior Service and Retrainee Input) (Average Weighted Course Length \div 52) (Completion %) + Average Load of Trainees Awaiting Training.
 - Navy:

Recruit Training: Training Load \times Historical Factor.
 Specialized Skill Training: Training Load + Personnel Awaiting Training (Supernumeraries).
 - Marine Corps:

Recruit Training: Projection of Actual Strength.
 General Skill Training: Training Load \times Historical Factor.

- It appears that only Army, for all PEs, and Marine Corps, for PE 84711, project a trainee end strength in accordance with the OSD definition. In all other cases, training loads are computed and used as end strength, or a factor is applied to convert training load to end strength.
- There is potential for significant differences between end strengths developed through inventory projection models and by workload formulas. Also, variances result from the different formulas that the Services use to develop training loads.
- This can be illustrated by comparing Army PE 84711 trainee end strength²¹⁷ as computed by the Army Manpower Program and end strength projections using a workload formula.

- Army end strength projection	13128
- Workload formula with 50 week year	14096
- Workload formula with 52 week year	13604

b. Army

- The projection of total trainee end strength as an integral part of the manpower program appears to produce a product consistent with the OSD definition.
- The assumptions which go into the program relative to quality of NPS input, success in meeting NPS accession goals, attrition and average elapsed time spent in trainee status, are variables which are, in other Services, built into workload projections.
- In assuring a balance with projections for other categories of personnel making up the total strength of the Army, the Army method for computing trainee end strength can be expected to provide a reliable estimate.
- The Army method for distributing end strength to program elements on the basis of load, (average strength) has some possible flaws as it may not adequately reflect seasonality. Recruit Training and OSUT loads are greater on 30 September than average. It may not distribute waiting time in accordance with actual practice since there is more waiting time associated with Basic Training and OSUT than Initial Skill Training. Waiting time is not a part of the load formula

used to distribute end strengths. Finally, the Army method pro-rates to all PEs, Army trainees undergoing Initial Skill Training by other Services.

c. Air Force

- The Air Force method for projecting trainee end strengths is based on the general assumption that the level initial input flow with its resultant level workload enjoyed in the past will continue. To the extent that the accession program is fairly even over the year, the assumption is a valid one, since the trainee strength on the last day of the year would be approximately equal to the average.
- In view of the probability of changes in accession programs to compensate for prior year shortfalls, the impact of seasonality in future years should be considered.
- The Air Force formula for end strength in the General Skill Training account includes a factor awarding "trainee" status to 25% of the combined input of prior service accessions who require Initial Skill Training and "retrainees." "Retrainees" are career airmen who are being converted from surplus to shortage specialties. Since they were previously trained, they are not technically trainees. The 25% factor has been used for a number of years without change based on a best estimate. New Air Force personnel accounting procedures will enable more precise tracking of personnel through training.
- The end strength produced by the model is sensitive to average course length. If, in fact, the average course length is 11 weeks rather than 10.8, the end strength projection would be greater as illustrated below:

- Using 10.8 weeks:

$$[59953 + (.25 \times 7150)] \left[\frac{10.8}{52} \right] (.94) + 1338 = 13393$$

- Using 11 weeks:

$$[59958 + (.25 \times 7150)] \left[\frac{11.0}{52} \right] (.94) + 1338 = 13613$$

- The Air Force is recomputing the average course length to assure consistency between training load and end strength computations.

d. Navy

- The Navy model for Recruit Training end strength is based on historical relationships between actual training loads and end strengths. This appears to be a reasonable approach to attributing end strength to PE 84711N, providing the seasonality pattern projected for future years is the same as in the past.
- The model for Specialized Skill Training uses loads plus computed average waiting time to equate to end strength. This is reasonable provided the end September strength and number of personnel awaiting training is expected to equal the average. To the extent seasonality is a factor this method would be in error.

e. Marine Corps

- The Recruit Training end strength model appears valid and meets the criteria of projected strength at the end of the year.
- The General Skill Training model is based on an historical ratio of training load to end strength. This is a reasonable approach provided the historical seasonality pattern is expected to be repeated in program years.

3. Recommended Models

- Projected trainee end strengths produced by computerized programs (as in the case of the Army and Marine Corps Recruit Training) are based on accession flow, attrition rates, and average time between entry into active service and completion of the final course of initial entry training (which terminates enlisted trainee status).
- Computerized models which can accept late program changes in accession schedules, accession mixes (male/female; High School Graduate/non-High School Graduate), attrition rates, and training programs can reflect the impacts of seasonality of accessions. They theoretically should produce trainee end strength projections which are more likely to be accurate than projections based on training loads. Training loads are average strength in training status. They can be expected to be reasonably close to end strength only if no significant seasonality in accessions is anticipated and trainees in a "non-training" status are included.

- Air Force, Navy, and the Marine Corps (for Initial Skill Training) use training load based models for computing end strength. To the extent that the models accurately reflect the entire time NPS personnel spend in trainee status, and given the absence of seasonality, they may be as valid for projecting the future as any other method.
- Because of the diversity of Service training load models, we believe that the Services should be encouraged to develop a forecasting technique based on accession programs, attrition rates, and total average time a NPS accession spends in trainee status.
- Pending such development, we suggest that OSD use a ratio of training load to end strength to project trainee end strength.

SECTION III FOOTNOTES

- 1/ Pages IX-1 and IX-2 FY80 MMTR.
- 2/ Pages A-2 and A-3 FY80 MMTR.
- 3/ Note that the Army considers a training year to be 50 weeks rather than 52.
- 4/ Within the fiscal year.
- 5/ Curriculum length.
- 6/ Compensates for two week break at Christmas.
- 7/ Includes recycle, waiting time and inprocessing time.
- 8/ Includes proportionate share of weekend and holiday time.
- 9/ The FY81 budget estimate used a different accession flow than is current for the President's budget.
- 10/ This approximation is below the exact answer of 8065 by 1%.
- 11/ Active, Reserve Components, Other Service, Civilian, Foreign.
- 12/ Input less attrition.
- 13/ Average weighted course length.
- 14/ From Recruit Training, Prior Service, and the Fleet.
- 15/ Input times attrition.
- 16/ Curriculum calendar days, recycles.
- 17/ For purposes of distributing Recruit Training output.
- 18/ As published in Air Training Command Letter, 2 May 1979, "Programming Factors for Air Training Command." In many cases, ATC uses engineering standards for training units.
- 19/ Used to distribute output from Recruit Training (also see Section III.B.3.b.).
- 20/ PCD X-7 -014, Dec. 19, 1977.
- 21/ FY81 Budget estimate as reflected in Sept. 28, 1979 FYDP Update.

IV. OBSERVATIONS

A. INTRODUCTION

All four Services use essentially the same system of preparing accessions for their first duty assignment. Recruit Training is used as a period for acquainting new accessions with their individual Service and preparing them for military life. The next stage of training is used to impart a skill which will be used in the service member's assignments. In some cases skill training is provided on-the-job (OJT), but usually formal training is the means by which job-related skills are taught. All Services have formalized systems for projecting workloads, training manpower, and trainee end strengths. General observations are made in this section related to each Service's training process and enlisted initial entry training models.

B. TRAINING PROCESS

The following observations are based on information contained in Section II.

1. Army

- The Army sends relatively few enlisted persons to units for OJT after Recruit Training as compared with the numbers assigned by the other three Services. This gives some assurance that units may concentrate on unit training without the additional burden of providing skill training.
- The Army projection of 137,500 enlisted NPS accessions for FY81 is based on the assumption that the Army will accomplish its FY80 revised NPS accession program of 169,800 and meet its mandated FY80 end strength of 776,700.

The revised FY80 NPS accession program is 16,400 more than was projected in the FY80 budget. This increase is to compensate for FY79 recruiting and end strength shortfalls, and to attain a 776,700 end

strength by end FY80. The Army intends to meet these goals partly by expanding its recruitment market to 17 year olds who are non-high school graduates. It also intends to bring personnel in at a more level monthly rate than in previous years. This is based on the assumption that the inclination of 17 year old non-high school graduates to enlist will be less affected by school terms than are other categories of personnel. A further assumption underlying this projection is that the Army will achieve a significant increase in reenlistments over FY79.

- Should the FY80 recruiting and end strength goals not be met, the programmed bulge in FY80 accessions and resultant training loads will move into FY81. Analysis or opinion pertaining to Army ability to recruit NPS personnel to programmed levels is outside the scope of this project. However, when measured against recruitment in FY79 the goals appear to be optimistic. If they are not achieved, accession projections for FY81 and training loads and manpower will have been understated. Under the assumptions that the Army recruits NPS accessions in the number and at the monthly rates projected in FY80, the FY81 NPS accession program appears adequate to meet the projected enlisted FY81 end strength of 673,000.
- The Army develops training manpower requirements on a course by course basis at installation level and subjects the estimates to a searching analysis by HQ TRADOC and further review at HQ DA. Manpower personnel at HQ TRADOC state that because of overall limitations on permanent party manpower, Specialized Skill Training in Service Schools is staffed at only 91.3% of military requirements and at only 66.4% of required civilians. TRADOC is currently considering eliminating some courses and classes in order to cope with this shortage.
- Examination of the structure for Initial Skill Training at several training centers reveals different patterns for charging instructors and overhead personnel to program elements. For example, at Fort Jackson the active brigade overhead is charged to PE 84731 (General Skill Training); while at Fort Leonard Wood, where the brigade oversees both One Station Unit Training and Initial Skill Training, the overhead is charged to PE 84761 (OSUT). At

the same station, a separate training group provides instruction for both Recruit Training and Initial Skill Training. These personnel are charged to PE 84711 (Recruit Training). TRADOC personnel advise that for simplicity in accounting, overhead personnel servicing two or more activities are charged to the major activity.

- There does not appear to be a similar problem at Army Schools where the Training Brigade and the Directorate of Training are completely charged to General Skill Training.
- Most of the skill training given at Army Training Centers is Initial Skill Training. The workload at Army Schools is mixed, with the majority falling under Skill Progression. Some of the training personnel directly support both categories. While manpower requirements are computed on a course by course basis, TRADOC does not maintain separate data on the time spent by each individual in Initial Skill versus time spent in Skill Progression Training support.

2. Air Force

- The Air Force had an accession shortfall in FY79. This is being corrected in FY80 by increasing input. In contrast to the amounts previously budgeted and programmed, the FY81 budget shows 1500 fewer inputs in the Active Air Force in FY79 and 1400 more in FY80. The training staff has been increased to handle the increased workload but end strength has not been increased for the additional trainees.
- Not all of the Recruit Training workload and manpower staff is being reported in the budget as part of FYDP Program 8 and Budget Activity 8. For the entire Air Training Command, there are approximately 1780 ATC end strengths and man-years reimbursed from Foreign Military Sales, of which 30 are in Recruit Training. This manpower is included in Program 10 (PE 02002), and does not show up as part of the military training program (8T). Although it may not pertain to Recruit Training, the Navy also reports training staff in Program 10, but Army (TRADOC) reports all of its training for foreign security assistance in Program 8.
- The Air Force methods for programming and budgeting manpower for Initial Skill Training seem to be reasonable and effective.

3. Navy

- Navy Recruit Training appears to be supported at the same level in FY81 as was true during FY78. Also, the input is distributed in somewhat the same manner with higher summer accessions and lower during the rest of the year. Assuming this distribution remains as programmed, the Recruit Training Commands would appear to be adequately staffed.
- Perhaps the salient observation to be made regarding the FY80 and FY81 Navy Initial Skill Training program has to do with the number of Recruit Training graduates who are projected to enter Initial Skill Training. The projected graduates for FY80 and FY81 are markedly increased over FY78 and even more so over FY79. Only time will tell whether these goals can be met but they appear optimistic relative to the recent past.
- FY81 is a "get well" year for the Navy in all aspects of its training establishment. This can be observed in the projected increases in instructors and decreasing workload per instructor for Initial Skill Training. At the same time there has been a concomitant increase in the ratio of instructors to other training staff personnel. This indicates continued emphasis on a lean mix of manpower in support of training in spite of increasing workloads.
- Navy workload is used to determine manpower requirements in "A" Schools. However, it appears that Marine Corps instructors assigned to the Navy are not included in the existing instructor base used by the Navy in calculating and justifying resource changes.

4. Marine Corps

- Marine Corps male Recruit Training has 66 series each having a total of 13 drill instructors. Even if the entire FY80 undistributed enlisted manpower change of minus 155 is taken from that element there would be 54 series remaining. These can handle a peak load of 16,200 which is higher than the projected maximum for FY80 and FY81 of 15,378 and

13,526, respectively. With median staffing of 65 per platoon the capability is 14,040 in total. This is projected to be exceeded during three months in FY80 and no months in FY81. It appears that Marine Corps Recruit Training is adequately staffed for the projected training load anticipated for FY80 and FY81.

- The Marine Corps training load figures appear to contain all time spent in the training pipeline from completion of Recruit Training to completion of the last school attended as well as recycles, transfers, and waiting time. As a consequence, a comparison of MCR calculated "pure" training load, which is based solely on course length and number of projected students, with the Budget Estimate training load for Initial Skill Training shows an approximate 11% variance (for FY80) for Active USMC enlisted.

Budget Estimate FY80 training load: 7367(PE84731)

116(PE84734)

Total: 7383

MCR calculation:
(see Section II.E.2.c.)

-6648

735

735 = .111
6648

The number of trainees projected to enter Initial Skill Training during FY80 is 28113 (36274 Training Output Plan - 8161 OJT). If non-school time equals 735 man-years this would equate to 9.5 days per student ($\frac{735}{28113} \times 365$) which appears to be reasonable if not understated.

- Marine Corps manpower provided to the Navy to teach Marines is not included by the Navy as manpower supporting Navy workload in Initial Skill Training (Navy "A" School).
- The Training Output Plan, used to calculate Marine Corps skill training, is not used in the preparation of program and budget documents. Thus, the estimates of training load for Initial Skill Training that are shown in the POM and budget displays are not accurate calculations based on skill shortages but rather estimates based on historical relationships.

C. INITIAL ENTRY TRAINING MODELS

Each Service has developed its own methodology for computing training loads, training manpower and training end strength for presentation to OSD in POM and budget submissions and for internal management. There is sufficient disparity between these models to suggest both improvements in Service methodologies and the development of standard models which might be useful to OSD.

The following observations are based on information contained in Section III.

1. Training Workload

- All Services generally follow the general formula described in the Military Manpower Training Report (MMTR) and the OSD prescribed definitions in preparing data for submission to OSD. However, no two Service models apply the guidance in precisely the same manner, and, except for the Army, the Services use different formulas for computing Recruit Training and Initial Skill Training workloads.
- Variations in methodology reduce confidence in the validity of analyses which involve comparisons of Service workloads. Some examples of variations in Recruit Training workload formulas follow:
 - The Army uses a 50 week year to compensate for a two week Christmas/New Year holiday period. The Air Force computes loads based on 52 weeks, and the Navy uses 365 days. A model of the Marine Corps methodology indicates that Service also uses a 365 day year.
 - The Army applies a 7% recycle rate to input. The Air Force estimates a 7% recycle rate and a 7% attrition rate, and uses neither in its formula. The Navy and Marine Corps include recycles in course length.
 - Army, Navy, and Air Force assume that inputs graduate during the fiscal year of entry. Marine Corps counts graduates when they actually occur.
 - The Air Force, Navy, and Marine Corps add waiting time to course length. Army does not.

- Variations in methodology for computing Initial Skill Training workloads generally parallel those cited above for Recruit Training. However, because Initial Skill Training is given to some prior service accessions and to retrainees as well as to Recruit Training graduates, some additional variations are introduced.
- No Service uses the same formula as another in the calculation of Recruit Training workload. Assurance of OSD ability to make comparisons across Services requires a consistent general model with precisely defined variables.
- The models below are recommended for use by OSD for assessment of Recruit Training load. They are a combination of the best features from all Services.
- Recruit Training Workload Model:

$$\frac{\text{Input} + \text{Output}}{2} \times \frac{\text{Course Length in Days}}{365} \text{ (Recycle Factor)}$$

Where:

Input is equal to NPS Active accessions, Reserve Component inputs, and prior service inputs (where required).

Output is input less attrition.

Course length is number of calendar days in the course plus "other trainee days." "Other trainee days" are defined as processing and fill time as well as waiting time. Waiting time is included because all Services assign trainees to a company sized unit immediately upon arrival and this requires supervision by Drill Instructors. Calendar days is the curriculum plus weekend and proportionate holidays.

Recycle factor is the average rate based on an average midpoint attrition. It may be applied as added days to course length or directly to inputs.

- Initial Skill Training Workload Model:

$$\frac{\text{Input} + \text{Output}}{2} \times \frac{\text{Pipeline Course Length in Days}}{365} \text{ (Recycle Factor)}$$

Where:

Input is equal to Active and Reserve Recruit training output less those trainees assigned directly to units or sent to other Services for training. Also included are other Service trainees received for training.

Course length is the "average weighted pipeline course length." This means that where more than one course is included in Initial Skill Training to complete the skill training, it will be treated as a single "pipeline" for the trainee.

Output is input less attrition.

Recycle factor is the average rate based on an average midpoint attrition. It may be applied as added days to course length or directly to inputs.

2. Training Manpower

a. Recruit Training

- All Services do not compute their training manpower requirements in the same manner.
 - The Army and the Air Force use a structural analysis technique which considers the integral training unit (company/flight) as the key variable.
 - The Navy uses a workload to instructor ratio based on a historical relationship.
 - The Marine Corps computes its requirements on the basis of scheduled classes and instructor man-hour requirements per class.
- Individual Service methods, while adequate for internal management, tend to complicate cross-Service analysis due to their variations.
- A model using the Air Force concept of variable manpower per variable training unit appears to be the most logical and consistent manner of assessing manpower resources in support of Recruit Training.
- The model recommended below for use by OSD is based on the Air Force concept and has the current factors for each Service.
- Recruit Training Manpower Model:

$$\Delta \text{ Manpower} = \frac{\Delta \text{ Workload}}{\text{Trainees per Variable Unit}} \times \frac{\text{Manpower per Variable Unit}}{\text{Trainees per Variable Unit}}$$

- where trainees per variable unit are:

Army battalion	= 800
Air Force flight	= 47.5
Navy company	= 70
Marine Corps series	= 260

- where manpower per variable unit is:

Army battalion	= 87
Air Force flight	= 3.2168
Navy company	= 4
Marine Corps series	= 13

b. Initial Skill Training

- Each Service computes its training manpower requirements in a different manner:
 - Army basically uses an on-site analysis system which provides data for development of fixed and variable instructor manpower requirements for each school and training center. It results in changes in both fixed and variable requirements from year to year.
 - The Air Force considers changes in instructors only, with basic staff considered fixed.
 - The Navy draws a single direct relationship between change in total workload and total manpower.
 - The Marine Corps does not use a formula and one was deduced from budget estimate data.
- Individual Service methods, while adequate for internal management, tend to complicate cross-Service analysis due to their variations.
- A model using the Air Force concept of variable manpower per change in workload appears to be the most logical and consistent manner of assessing manpower resources in support of Initial Skill Training.
- The model recommended below for use by OSD is based on the Air Force model and has current factors for each Service.
- Initial Skill Training Manpower Model:

$$\Delta \text{ Manpower} = \Delta \text{ Workload} \times \text{Manpower per Workload}$$

- where manpower per Δ workload is:

Army	= .2040
Air Force	= .1927
Navy positive Δ	= .2053
negative Δ	= .2053 x .60
Marine Corps	= .1154

3. Trainee End Strength

- Each Service estimates projected trainee end strength in a different manner as summarized below.

Service	Projection of Actual Trainee Strength	Trainee Training Load	Trainee Training Load Factored	Trainee Training Load and Supernumeraries
Army	X			
Air Force		X		
Navy			X	
- Recruit Tng				
- Skill Tng				X
Marine Corps			X	
- Recruit Tng	X			
- Skill Tng				

- Because of the diversity of Service training load models, we believe that the Services should be encouraged to develop a forecasting technique based on accession programs, attrition rates, and total average time a NPS accession spends in trainee status.
- Pending such development, we suggest that OSD use a ratio of training load to end strength to project trainee end strength.

APPENDIX A
REFERENCE SOURCES

REFERENCE SOURCES

1. OFFICE, SECRETARY OF DEFENSE

- a. Military Manpower Training Report for FY80, Department of Defense, March, 1979.

2. ARMY

Documents:

- a. Accession data: Army Manpower Programs and Exhibit OP-14 for FY 1981 Budget Estimate. Exhibit A-1.
- b. Training Loads and Training Manpower furnished by HQ DA, DCSOPS (TRI).
- c. Attrition rates furnished by DCSPER (MBM).
- d. Training Company data furnished by HQ TRADOC (DCSRM).
- e. Training Organization Charts from sample Tables of Distribution (TDA) furnished by HQ DA, DCSPER (MSA).
- f. Training Manpower data from FYDP update for FY 1981 Budget Estimate furnished by HQ DA, DCSPER (MBA).
- g. Manpower Estimating Factors from "TRADOC Resource Factor Handbook," HQ TRADOC, 7 December 1979.

Interviews

- a. LTC Ray Sasaki, DCSOPS (TRI)
- b. LTC Thomas L. Adams, Jr., DCSOPS (TRI)
- c. LTC James R. Robinson, DCSPER (MBM)
- d. LTC Gene A. Venzke, DCSPER (MBM)
- e. MAJ James R. Stewart, DCSOPS (TRI)
- f. Ms. Marion Phillips, MILPERCEN
- g. MAJ Thomas Addison, HQ TRADOC

3. AIR FORCE

Documents

- a. Exhibit OP-14 for FY 1981 Budget Estimate, September 1979.

- b. Air Training Command letter, 2 May 1979, "Programming Factors for Air Training Command."
- c. Air Force FYDP, Manpower Program by PEC, 20 September, 1979.
- d. AFR 35-38, "Pipeline Management."
- e. Briefing: "Airman Trained Personnel Requirements (TPR)," Directorate of Personnel Programs, DCS/Manpower and Personnel, HQ USAF.

Interviews

- a. MAJ Raymond Bouthillier, AFMPP
- b. Mr. Earl Baldwin, AFMPP
- c. MAJ James G. Tattini, AFMPP
- d. LTC William P. Babione, AFMPP
- e. Ms. Jean Breeden, AFMPP
- f. CAPT George Gentry, Air Training Command
- g. Mr. William Duncan, Air Training Command
- h. Mr. Jack Reece, AFMPP
- i. Ms. T.A. Blackburn, AFMPP

4. NAVY

Documents

- a. Exhibit OP-14 for FY 1981 Budget Estimate, September 1979.
- b. CNTECHTRA Instruction 5453.1B, "Organization Guide for Naval Technical Training Command Activities."
- c. STAPLAN (Status-Time-Attrition Planning Methodology) BUPERS, September 15, 1966.
- d. Class "A" School Training Requirements, OP-114C.
- e. FY 1980 Class "A" School Training Input Plan, OP-114C.
- f. Navy Training Resource Model (TRM), descriptions by Resource Consultants Incorporated, 1979.

Interviews

- a. LCDR Anthony Comfort (OP-114C)
- b. LT Michael Wood (OP-114C)

- c. LCDR Paul Romanski (OP-135E)
- d. LCDR Steven Claassen (OP-120E)
- e. Mr. William Johnson (OP-120E)
- f. Mrs. Betty Gates (OP-120E)
- g. Mr. Joseph Ware (CNET N-224)
- h. Mr. William Rayburn (CNET N-615)
- i. LCDR R.A. Robbins (OP-135C)

5. MARINE CORPS

Documents

- a. Exhibit OP-14 for FY 1981 Budget Estimate, September 1979.
- b. Manpower and related data from sample FYDP data furnished by HQ USMC Manpower; Programs and Budget (MPP-41).
- c. Training data furnished by HQ USMC Training; Plans and Budget (OTTB).
- d. Unit Tables of Organization (T/O). Furnished by HQ USMC Manpower Control; Military Allocations (MPC-23).
- e. Distribution Plan for FY80 OJT furnished by HQ USMC Manpower; Enlisted Plans and Systems (MPP-24).
- f. Training Tracks furnished by HQ USMC (OTTB).
- g. Training Course lists furnished by HQ USMC (OTTB).

Interviews

- a. LTC Thomas Faleski (OTTB)
- b. MAJ Ted Lewis (MPP-24)
- c. MAJ Thomas Steele (MPP-42)
- d. Mr. Michael House (OTTB)
- e. CPT Robert Rivers (OTTB)
- f. Mr. Harold Stepanich (MPC-23)

APPENDIX B

BACKUP DATA

APPENDIX B
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ARMY

ARMY PROGRAMS FOR INDIVIDUAL TRAINING (A P P R I N T)
TRAINING REQUIREMENTS AND PROGRAM AS OF 30/07/79

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SCHOOL MOS	COURSE NUMBER	COURSE TITLE	COURSE TYPE	BUDGET CODE	COMMAND ACCESSION CODE
805	750-BT	BASIC TRAINING	ARMY OSD	014711	T X

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT SIZE	MIN SIZE	FY 1980	LENGTH: WKS	DAYS	TOTAL ATTRIT
20383	50	220 /	200 /	150	7	0.0		13.5

-----REP-----				-----REP-----			
-----ACTIVE ARMY-----	-----TRAINEE (WAC)	-----USAR (WAC)	-----PCS STUDENTS	-----TDY/W/PCS--	-----TDY & RETURN-	-----ADT-ARNG--	
TNG RQR	31675 (6960)	7296 (2456)	4829 (1529)	OFF EHL	OFF EHL	OFF EHL	
OFF EHL	OFF EHL	OFF EHL	0 0	0 0	0 0	0 0	
TNG RQR	0 0	0 0	0 0	-----USCG-----	-----USCG-----	-----USCG-----	
-----ADT-USAR--	-----USN-----	-----USMC-----	OFF ENL	OFF ENL	OFF ENL	OFF ENL	
OFF EHL	OFF EHL	OFF EHL	0 0	0 0	0 0	0 0	

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT SIZE	MIN SIZE	FY 1991	LENGTH: WKS	DAYS	TOTAL ATTRIT
18900	50	220 /	200 /	150	7	0.0		13.5

-----REP-----				-----REP-----			
-----ACTIVE ARMY-----	-----TRAINEE (WAC)	-----USAR (WAC)	-----PCS STUDENTS	-----TDY/W/PCS--	-----TDY & RETURN-	-----ADT-ARNG--	
TNG RQR	27192 (6882)	6242 (2442)	4676 (1776)	OFF EHL	OFF EHL	OFF EHL	
OFF EHL	OFF EHL	OFF EHL	0 0	0 0	0 0	0 0	
TNG RQR	0 0	0 0	0 0	-----USCG-----	-----USCG-----	-----USCG-----	
-----ADT-USAR--	-----USN-----	-----USMC-----	OFF ENL	OFF ENL	OFF ENL	OFF ENL	
OFF EHL	OFF EHL	OFF EHL	0 0	0 0	0 0	0 0	

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT SIZE	MIN SIZE	FY 1992	LENGTH: WKS	DAYS	TOTAL ATTRIT
18900	50	220 /	200 /	150	7	0.0		13.5

-----REP-----				-----REP-----			
-----ACTIVE ARMY-----	-----TRAINEE (WAC)	-----USAR (WAC)	-----PCS STUDENTS	-----TDY/W/PCS--	-----TDY & RETURN-	-----ADT-ARNG--	
TNG RQR	26559 (8085)	8358 (2653)	4883 (1695)	OFF EHL	OFF EHL	OFF EHL	
OFF EHL	OFF EHL	OFF EHL	0 0	0 0	0 0	0 0	
TNG RQR	0 0	0 0	0 0	-----USCG-----	-----USCG-----	-----USCG-----	
-----ADT-USAR--	-----USN-----	-----USMC-----	OFF ENL	OFF ENL	OFF ENL	OFF ENL	
OFF EHL	OFF EHL	OFF EHL	0 0	0 0	0 0	0 0	

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT SIZE	MIN SIZE	FY 1983	LENGTH: WKS	DAYS	TOTAL ATTRIT
18900	50	220 /	200 /	150	7	0.0		13.5

-----REP-----				-----REP-----			
-----ACTIVE ARMY-----	-----TRAINEE (WAC)	-----USAR (WAC)	-----PCS STUDENTS	-----TDY/W/PCS--	-----TDY & RETURN-	-----ADT-ARNG--	
TNG RQR	27878 (7960)	7742 (2412)	4494 (1688)	OFF EHL	OFF EHL	OFF EHL	
OFF EHL	OFF EHL	OFF EHL	0 0	0 0	0 0	0 0	
TNG RQR	0 0	0 0	0 0	-----USCG-----	-----USCG-----	-----USCG-----	
-----ADT-USAR--	-----USN-----	-----USMC-----	OFF ENL	OFF ENL	OFF ENL	OFF ENL	
OFF EHL	OFF EHL	OFF EHL	0 0	0 0	0 0	0 0	

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT SIZE	MIN SIZE	FY 1984	LENGTH: WKS	DAYS	TOTAL ATTRIT
18900	50	220 /	200 /	150	7	0.0		13.5

-----REP-----				-----REP-----			
-----ACTIVE ARMY-----	-----TRAINEE (WAC)	-----USAR (WAC)	-----PCS STUDENTS	-----TDY/W/PCS--	-----TDY & RETURN-	-----ADT-ARNG--	
TNG RQR	27878 (7960)	7742 (2412)	4494 (1688)	OFF EHL	OFF EHL	OFF EHL	
OFF EHL	OFF EHL	OFF EHL	0 0	0 0	0 0	0 0	
TNG RQR	0 0	0 0	0 0	-----USCG-----	-----USCG-----	-----USCG-----	
-----ADT-USAR--	-----USN-----	-----USMC-----	OFF ENL	OFF ENL	OFF ENL	OFF ENL	
OFF EHL	OFF EHL	OFF EHL	0 0	0 0	0 0	0 0	

ARMY PROGRAMS FOR INDIVIDUAL TRAINING (A R P R I N T)
TRAINING REQUIREMENTS AND PROGRAM AS OF 30/07/79

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RUN DATE: 08/01/79

SCHOOL MOS COURSE NUMBER
CODE
809 11B1 11B10-OSUT
USATC, FT BEARING

COURSE TITLE
LIGHT WEAPONS INFANTRYMAN
ARMY OSD
06 G1
BUDGET CODE
014761 T
COMMAND ACCESSION
CODE
H

***** PHASE ANNUAL CAP CLASS FREQ MAX SIZE/OPT SIZE/MIN SIZE LENGTH: WKS DAYS TOTAL ATTRIT FY 1980 (790724)

----ACTIVE ARMY----
----REPO----

TRAIREE (WAC) ARIG (WAC) USAR (WAC) PCS STUDENTS --TDY/W/PCS--
8978 1 4298 1 1131 (0) OFF ENL -TDY & RETURN-
0 0 0 0 0 0 ENL OFF ENL
----ADT-USAR----
OFF ENL OFF ENL OFF ENL
0 0 0 0 0 0

***** PHASE ANNUAL CAP CLASS FREQ MAX SIZE/OPT SIZE/MIN SIZE LENGTH: WKS DAYS TOTAL ATTRIT FY 1981 (790724)

----ACTIVE ARMY----
----REPO----

TRAIREE (WAC) APNG (WAC) USAR (WAC) PCS STUDENTS --TDY/W/PCS--
8250 1 5254 1 913 1 OFF ENL -TDY & RETURN-
0 0 0 0 0 0 ENL OFF ENL
----ADT-USAR----
OFF ENL OFF ENL OFF ENL
0 0 0 0 0 0

***** PHASE ANNUAL CAP CLASS FREQ MAX SIZE/OPT SIZE/MIN SIZE LENGTH: WKS DAYS TOTAL ATTRIT FY 1982 (790724)

----ACTIVE ARMY----
----REPO----

TRAIREE (WAC) ARIG (WAC) USAR (WAC) PCS STUDENTS --TDY/W/PCS--
8102 1 5254 1 932 1 OFF ENL -TDY & RETURN-
0 0 0 0 0 0 ENL OFF ENL
----ADT-USAR----
OFF ENL OFF ENL OFF ENL
0 0 0 0 0 0

***** PHASE ANNUAL CAP CLASS FREQ MAX SIZE/OPT SIZE/MIN SIZE LENGTH: WKS DAYS TOTAL ATTRIT FY 1983 (790724)

----ACTIVE ARMY----
----REPO----

TRAIREE (WAC) ARIG (WAC) USAR (WAC) PCS STUDENTS --TDY/W/PCS--
8426 1 5076 1 901 1 OFF ENL -TDY & RETURN-
0 0 0 0 0 0 ENL OFF ENL
----ADT-USAR----
OFF ENL OFF ENL OFF ENL
0 0 0 0 0 0

***** PHASE ANNUAL CAP CLASS FREQ MAX SIZE/OPT SIZE/MIN SIZE LENGTH: WKS DAYS TOTAL ATTRIT FY 1984 (790724)

----ACTIVE ARMY----
----REPO----

TRAIREE (WAC) ARIG (WAC) USAR (WAC) PCS STUDENTS --TDY/W/PCS--
8426 1 5076 1 901 1 OFF ENL -TDY & RETURN-
0 0 0 0 0 0 ENL OFF ENL
----ADT-USAR----
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ARMY PROGRAMS FOR INDIVIDUAL TRAINING (IAP PRINT)

PAGE 338
RUN DATE: 08/01/79

SCINOL	COURSE	COURSE TITLE	COURSE TYPE	BUDGET	COMMAND	ACCESSION
CODE	CODE	CODE	CODE	CODE	CODE	CODE
093	2761	121-27610	AFRIY	814731	T	R
M3L & MUNITIONS SCHOOL						

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

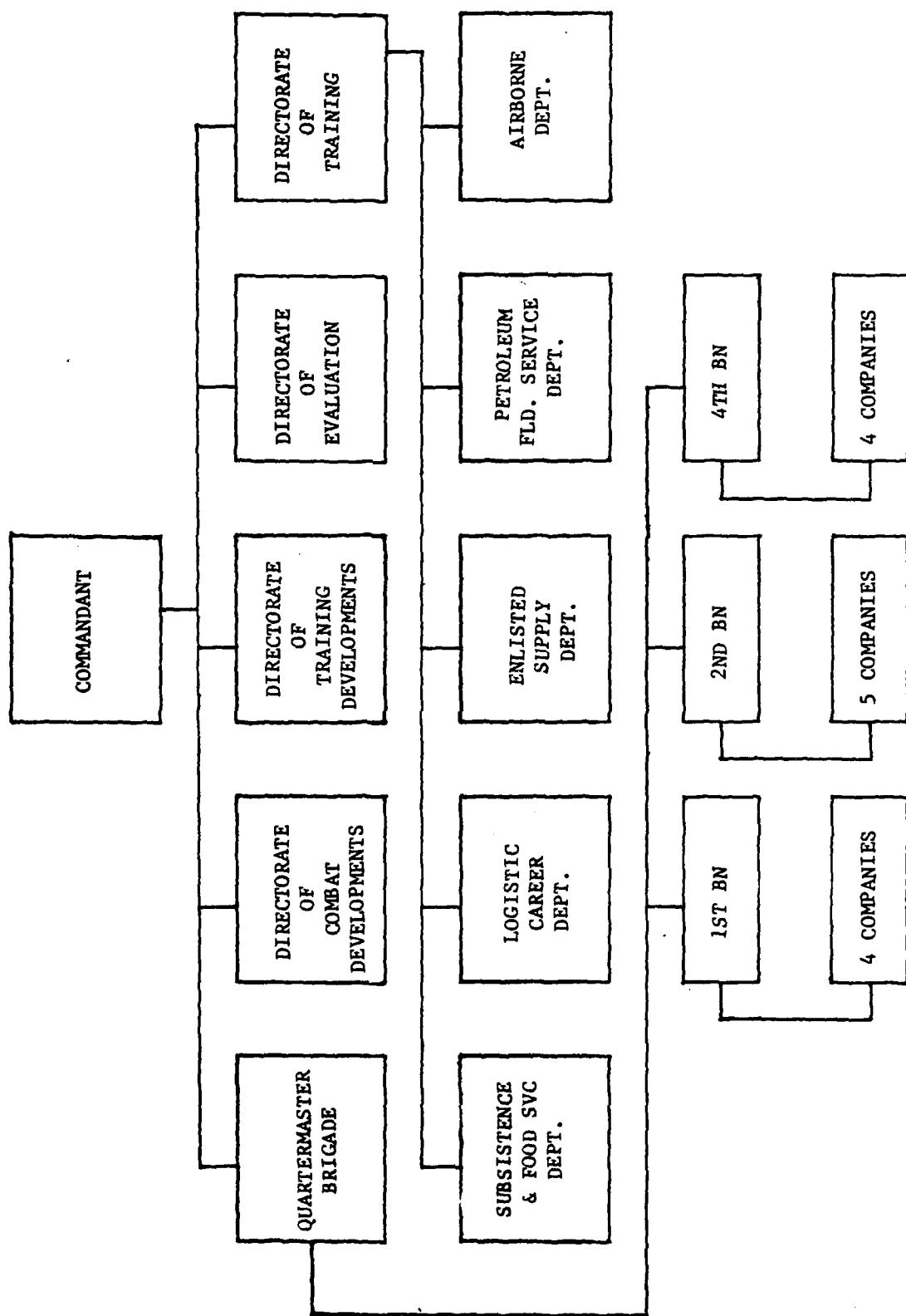
PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

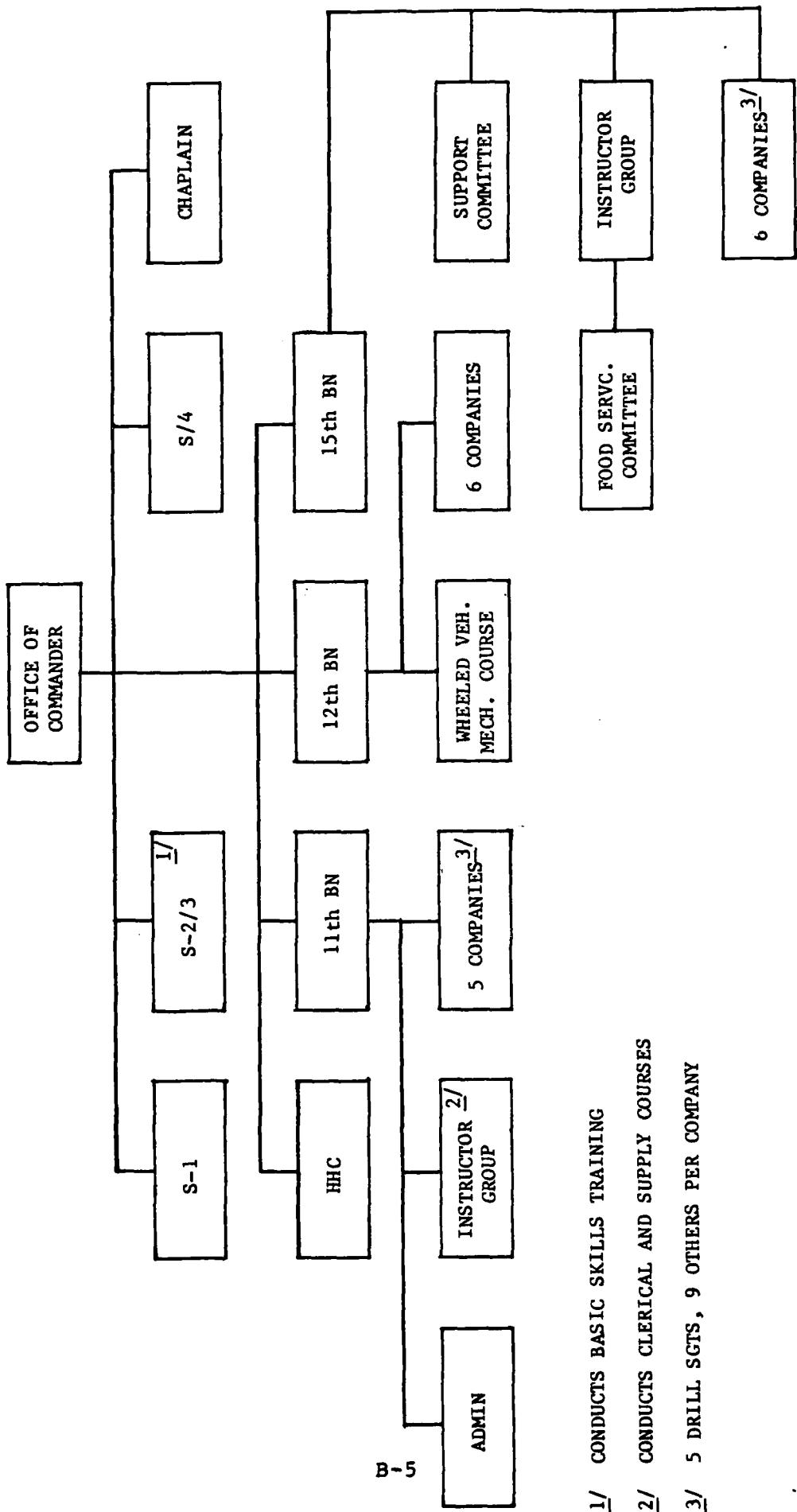
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	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											

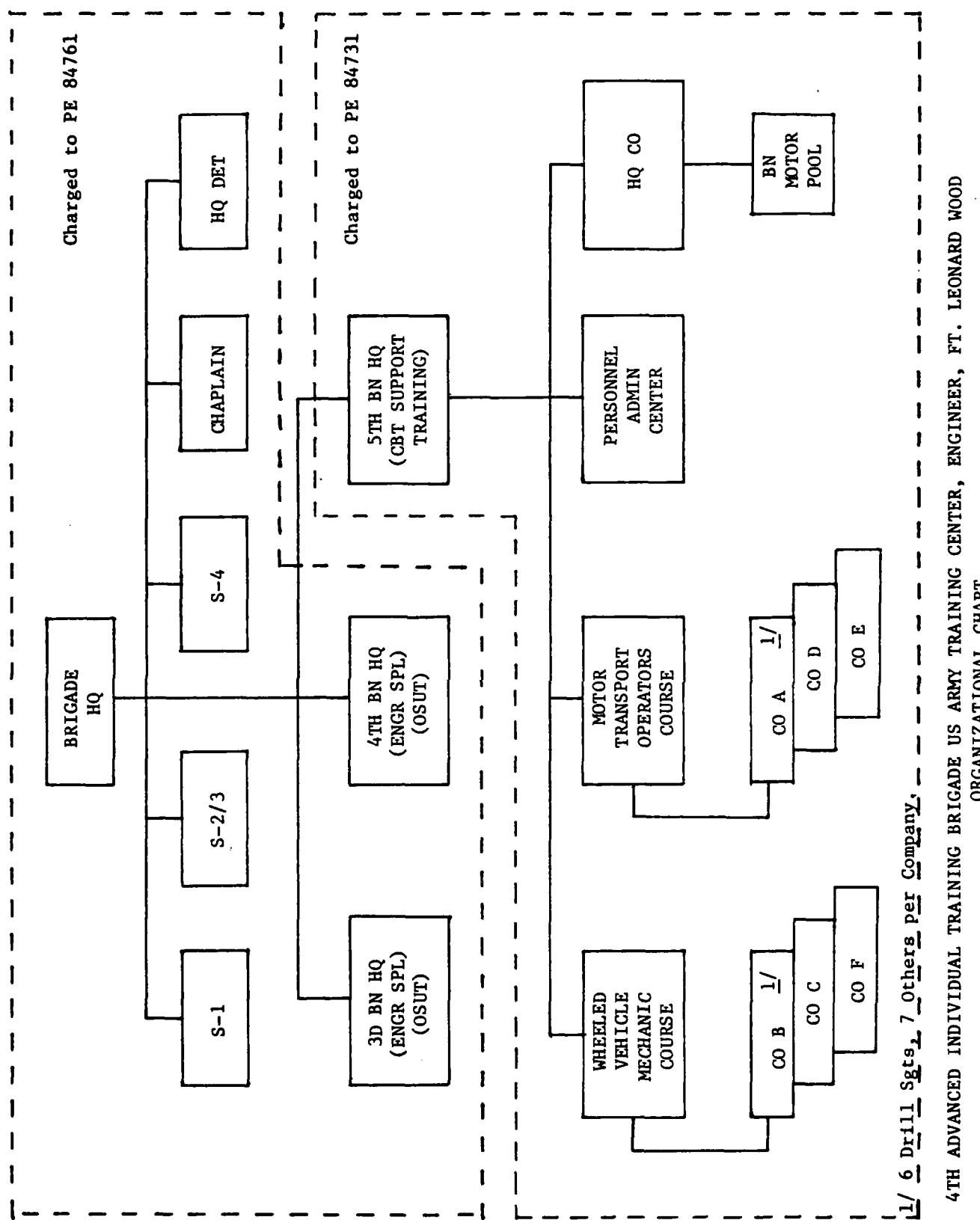
PHASE	ANNUAL CAP	CLASS FREQ	MAX SIZE/OPT	SIZE/MIN	SIZE	LENGTH: WKS	ATTRIT	FY 1950	LENTH: WKS	ATTRIT	FY 1950
	170	17	12	/	8	24	0.0	27.4	24	0.0	27.4
REDEYE WFI SYS REPAIR											



US ARMY QUARTERMASTER SCHOOL, FT. LEE ORGANIZATIONAL CHART



4TH COMBAT SUPPORT TRAINING BRIGADE, US ARMY TRAINING CENTER, FT. JACKSON ORGANIZATIONAL CHART



AIR FORCE

PROGRAM VIII

Program Element: 84731

EXHIBIT OP-14 DATA FOR FY 1981 BUDGET
BASIC PART A: STUDENTS/TRAINEES

INITIAL SKILL (ENLISTED) GENERAL SKILL TRAINING

	ACTUAL FY 78				ESTIMATED FY 79				ESTIMATED FY 80				ESTIMATED FY 81				PROJECTED FY 82			
	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS
<u>Training Loads</u>																				
Active	56359	56725	13761	56589	53287	11966	59731	55668	12432	60030	55961	12493	12513	11850	12513	11850	12513	11850	12513	11850
Reserve	2385	2294	448	2612	2270	400	2885	2693	465	2885	2693	465	465	465	465	465	465	465	465	465
National Guard	3416	3231	721	3686	3496	685	3676	3487	700	3676	3487	700	700	700	700	700	700	700	700	700
Total Training Loads	62160	62250	14910	62887	59053	13051	66292	61848	11592	66591	62141	13658	13658	13658	13658	13658	13658	13658	13658	13658
<u>Work Loads</u>																				
Active	55477	56036	13587	55553	52454	11760	58105	54427	12076	58404	54720	12137	12157	11494	12157	11494	12157	11494	12157	11494
Reserve	2385	2294	448	2612	2270	400	2885	2693	465	2885	2693	465	465	465	465	465	465	465	465	465
National Guard	3416	3231	721	3686	3496	685	3661	3473	699	3661	3473	699	699	699	699	699	699	699	699	699
Training for Others	3354	3035	824	3834	3472	895	2847	2757	719	2456	2366	719	719	719	719	719	719	719	719	719
Total Work Loads	64632	64596	15580	65685	61692	13740	67498	63350	13979	67406	63252	14040	14060	13397	14040	13397	14040	13397	14040	13397

PROGRAM VIII
Program Element: 84733

EXHIBIT OP-14 DATA FOR FY 1981 BUDGET
BASIC PART A: STUDENTS/TRAINEES
INITIAL SKILL (ENLISTED) GENERAL INTELLIGENCE

(Service) Air Force Page

Training Loads	ACTUAL FY 78			ESTIMATED FY 79			ESTIMATED FY 80			ESTIMATED FY 81			PROJECTED FY 82 LOADS		
	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS
Active	1149	1037	698	1359	888	689	1414	1228	883	1434	1228	883	883	883	883
Reserve	2	2	-	5	-	5	4	4	1	4	4	1	1	1	1
National Guard	21	21	4	27	24	5	34	31	7	34	31	7	7	7	7
Total Training Loads	1172	1060	702	1391	917	655	1472	1263	891	1472	1263	891	891	891	891
Work Loads															
Active	341	359	102	379	300	164	477	424	169	477	424	169	169	169	169
Reserve	2	2	-	5	5	1	4	4	1	4	4	1	1	1	1
National Guard	21	21	4	27	24	5	34	31	7	34	31	7	7	7	7
Training for Others	311	245	67	260	248	63	229	190	51	229	190	51	51	51	51
Total Work Loads	675	627	173	671	577	233	744	649	228	744	649	228	228	228	228

PROGRAM VIII
Program Element: 94734

EXHIBIT OP-14 DATA FOR FY 1981 BUDGET
BASIC PART A: STUDENTS/TRAINNEES

INITIAL SKILL (ENLISTED) CRYPTO-SIGINT

(Service) Air Force Page

	ACTUAL FY 78			ESTIMATED FY 79			ESTIMATED FY 80			ESTIMATED FY 81			PROJECTED LOADS		
	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS
<u>Training Loads</u>															
Active	1717	1280	567	1388	970	554	994	850	450	994	850	450	450	450	450
Reserve															
National Guard															
Total Training Loads	1717	1280	567	1388	970	554	994	850	450	994	850	450	450	450	450
<u>Work Loads</u>															
Active	1394	1013	466	1101	729	438	870	680	377	870	726	377	377	377	377
Reserve															
National Guard															
Training for Others	525	302	111	665	475	179	822	743	215	822	743	215	215	215	215
Total Work Loads	1919	1315	577	1766	1204	617	1692	1423	592	1692	1469	592	592	592	592

PROGRAM VIII.

Program Element: 86761

EXHIBIT OP-14 DATA FOR FY 1981 BUDGET
 BASIC PART A: STUDENTS/TRAINEES

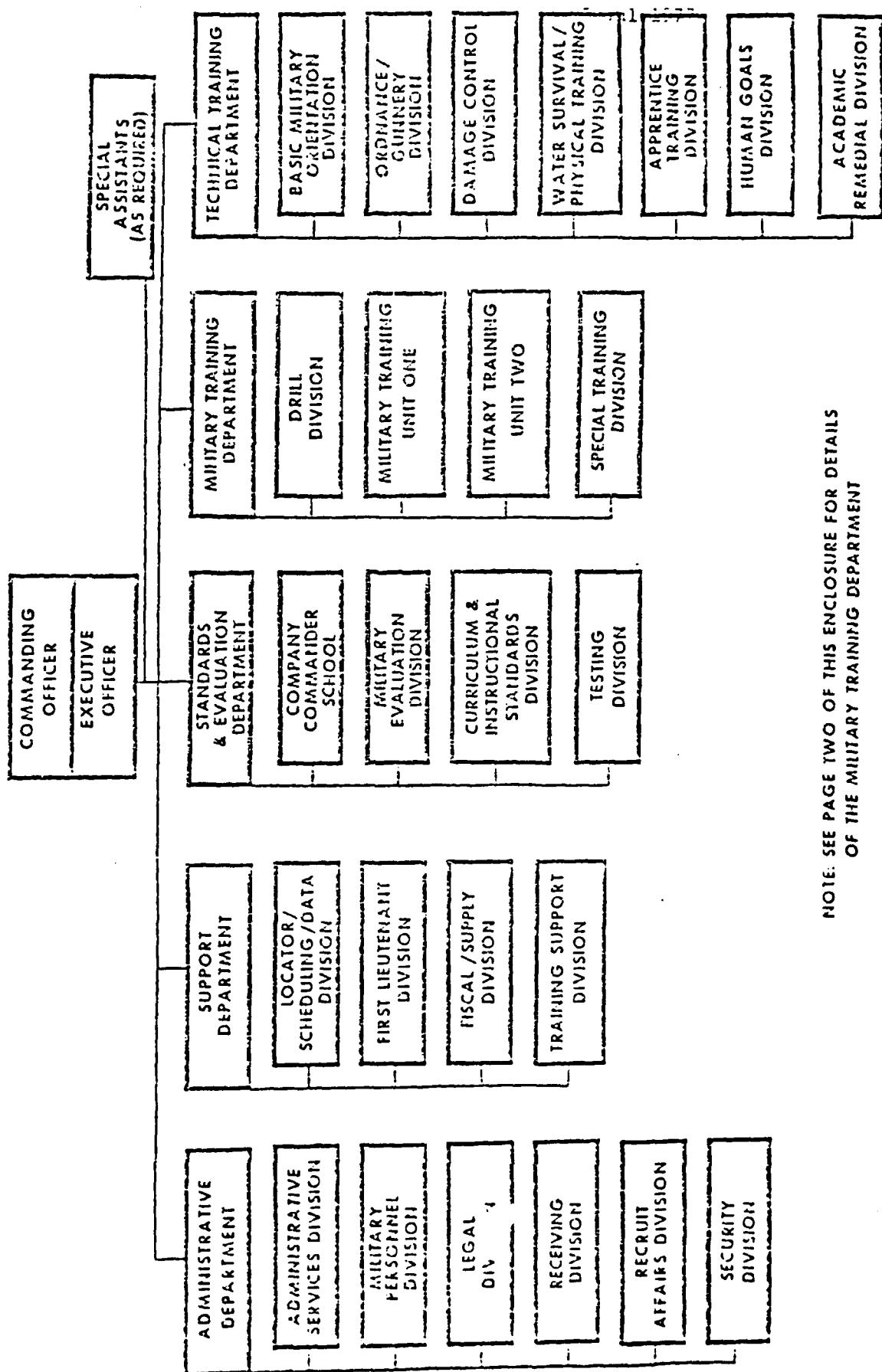
(Service) Air Force Page

Initial Skill (Enlisted) Health Care

	ACTUAL FY 78			ESTIMATED FY 79			ESTIMATED FY 80			ESTIMATED FY 81			PROJECTED LOADS		
	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS	ENTRS	GRADS	LOADS
<u>Training Loads</u>															
Active	3185	3004	646	1771	3545	693	4542	4286	836	4650	4371	856	856	856	856
Reserve	510	488	94	564	530	92	533	501	86	523	497	85	85	85	85
National Guard	286	274	51	342	321	56	349	328	74	294	279	64	64	64	64
Total Training Loads	3981	3766	791	4677	4396	841	5424	5115	996	5467	5147	1005	1005	1005	1005
<u>Work Loads</u>															
Active	3185	3004	646	3765	3539	690	4536	4280	833	4641	4362	851	851	851	851
Reserve	510	488	94	564	530	92	533	501	86	523	497	85	85	85	85
National Guard	286	274	51	347	321	56	349	328	74	294	279	64	64	64	64
Training for Others	35	34	6	64	61	19	102	96	22	98	92	22	22	22	22
Total Work Loads	4016	3800	797	4735	4451	857	5520	5205	1015	5556	5230	1022	1022	1022	1022

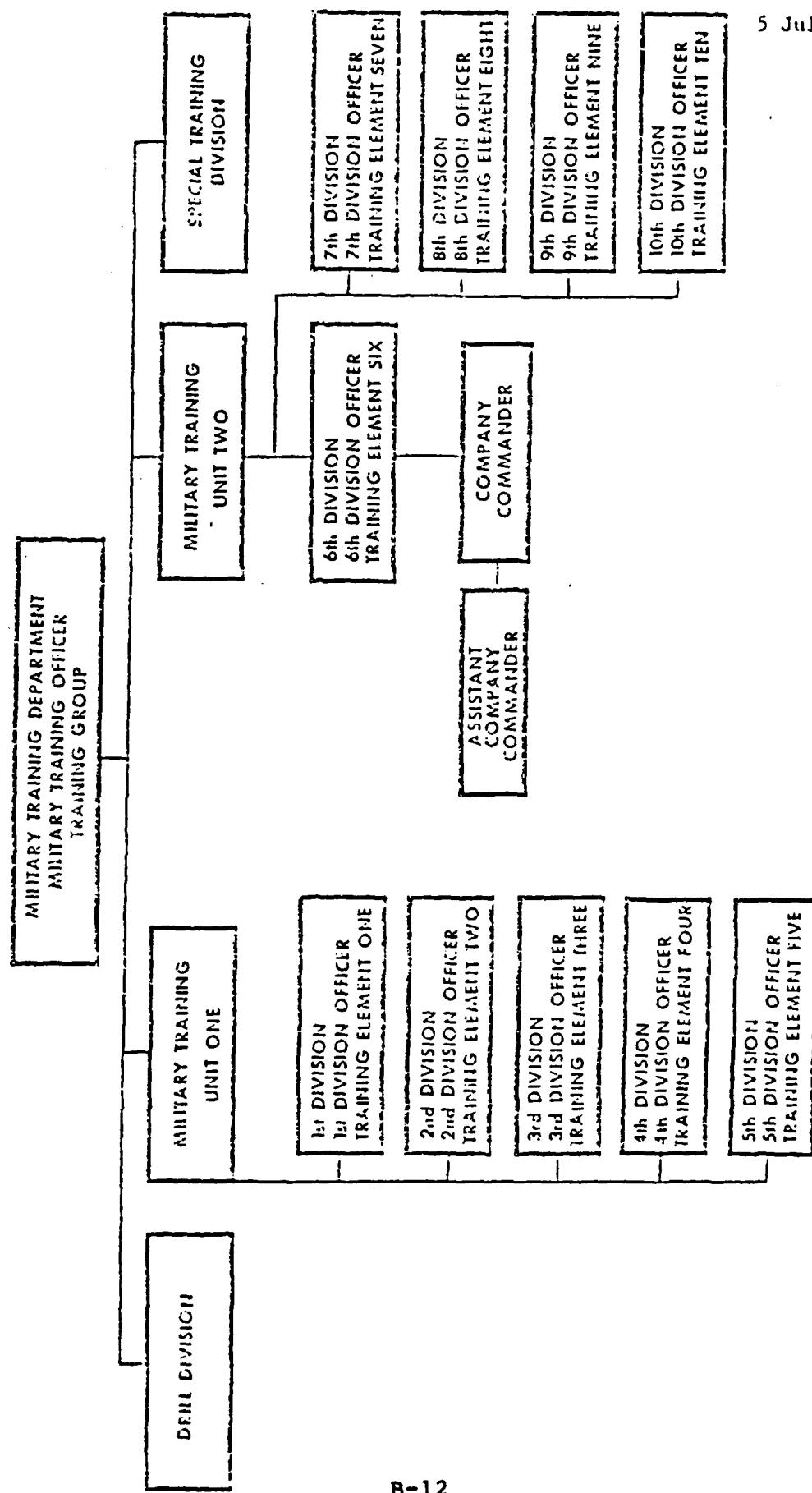
NAVY

STANDARD ORGANIZATION - NAVAL RECRUIT TRAINING COMMAND

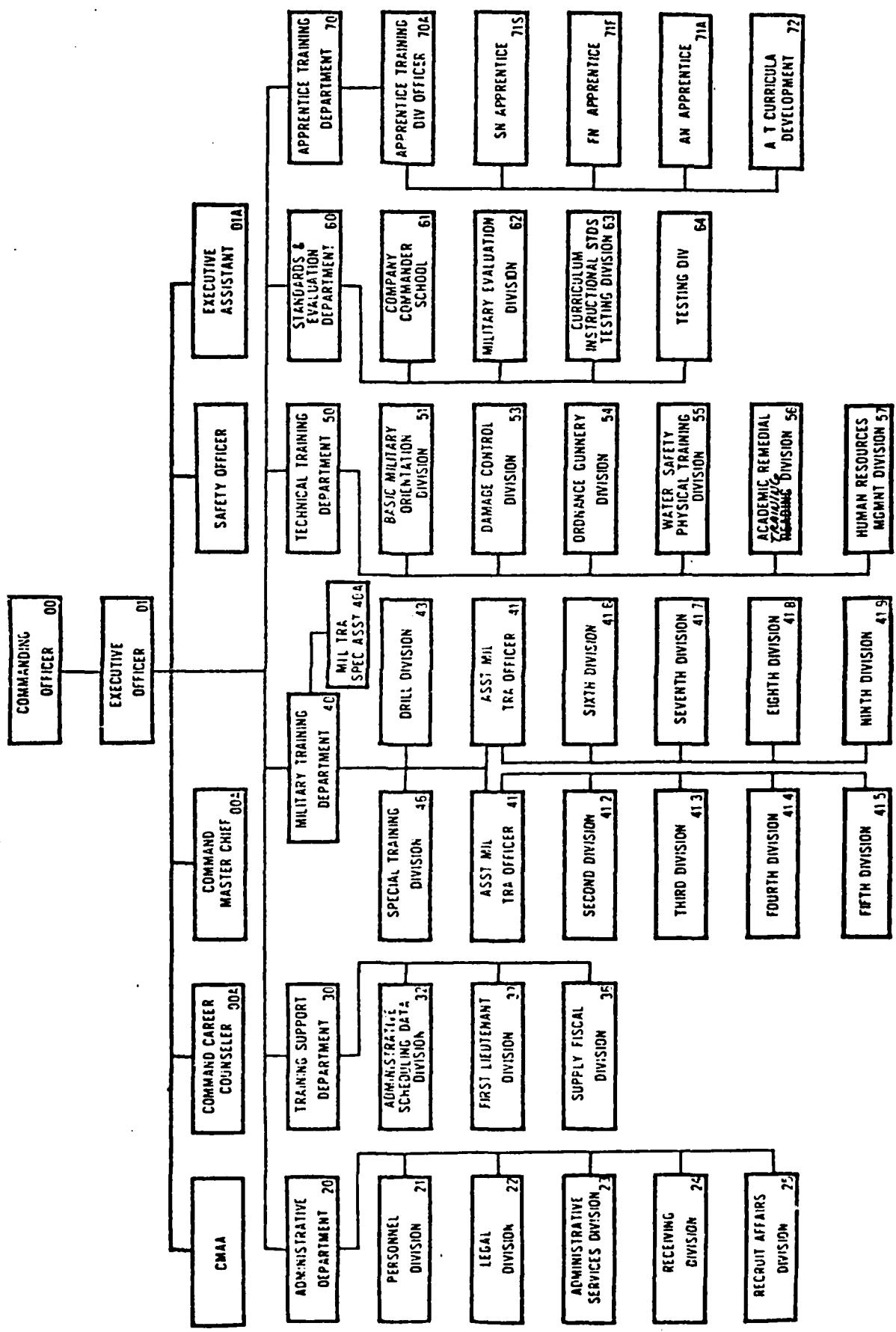


NOTE: SEE PAGE TWO OF THIS ENCLOSURE FOR DETAILS
OF THE MILITARY TRAINING DEPARTMENT

5 Jul 1977



ORGANIZATION-RECRUIT TRAINING COMMAND ORLANDO



MARINE CORPS

REVISCD

FY80 TRAINING OUTPUT PLAN^{1/}
(Active USMC)

<u>MOS</u>	<u>TRAINING OUTPUT</u>
0121	323
0131	323
0151	1015
0161	84
OCCFLD 01	1745
<u>MOS</u>	<u>TRAINING OUTPUT</u>
0231	65
OCCFLD 02	85
<u>MOS</u>	<u>TRAINING OUTPUT</u>
0311	5423
0331	959
0341	1369
0351	1170
OCCFLD 03	8921
<u>MOS</u>	<u>TRAINING OUTPUT</u>
0431	40
0441	98
0451	77
OCCFLD 04	215
<u>MOS</u>	<u>TRAINING OUTPUT</u>
0811	745
0842	32
0844	297
0846	64
0847	27
0849	69
OCCFLD 08	1234
<u>MOS</u>	<u>TRAINING OUTPUT</u>
1121	167
1141	137
1142	233
1161	68
1171	99
1173	32
1181	36
1182	21
OCCFLD 11	793

1/ Not used by USMC - prepared
for Info only Sept. 1979

Enclosure (1)

<u>MOS</u>	<u>TRAINING OUTPUT</u>
1316	69
1341	378
1345	445
1371	1064
1381	161
1391	426
OCCFLD 13	2543
<u>MOS</u>	<u>TRAINING OUTPUT</u>
1411	13
1421	23
1431	19
OCCFLD 14	55
<u>MOS</u>	<u>TRAINING OUTPUT</u>
1521	29
1522	8
1531	4
OCCFLD 15	41
<u>MOS</u>	<u>TRAINING OUTPUT</u>
1811	329
1833	554
OCCFLD 18	883
<u>MOS</u>	<u>TRAINING OUTPUT</u>
2111	266
2131	63
2142	223
2144	48
2145	88
2161	22
2171	20
OCCFLD 21	730
<u>MOS</u>	<u>TRAINING OUTPUT</u>
2311	367
OCCFLD 23	367
<u>MOS</u>	<u>TRAINING OUTPUT</u>
2512	860
2513	56
2531	2109
2532	21

Enclosure (1)

<u>MOS</u>	<u>TRAINING OUTPUT</u>
2534	81
2542	583

OCCFLD 25	3710
-----------	------

<u>MOS</u>	<u>TRAINING OUTPUT</u>
2621	67
2622	27
2631	26
2632	3
2641	16
2651	34

OCCFLD 26	173
-----------	-----

<u>MOS</u>	<u>TRAINING OUTPUT</u>
2811	35
2813	25
2814	7
2818	48
2819	4
2821	2
2825	2
2826	1
2827	3
2828	5
2829	3
2831	31
2841	277
*2851	40
*2853	15
2871	11
2881	11

OCCFLD 28	520
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<u>MOS</u>	<u>TRAINING OUTPUT</u>
3043	728
3051	989
3052	67
3061	62
*3072	443
*3073	15
3081	9

OCCFLD 30	2313
-----------	------

<u>MOS</u>	<u>TRAINING OUTPUT</u>
3111	385
3121	46

Enclosure (1)

<u>MOS</u> <u>3141</u>	<u>TRAINING OUTPUT</u> 13
OCCFLD 31	444
<u>MOS</u> <u>3311</u> <u>3371</u>	<u>TRAINING OUTPUT</u> 155 808
OCCFLD 33	964
<u>MOS</u> <u>3421</u> <u>3431</u> <u>3451</u>	<u>TRAINING OUTPUT</u> 207 22 32
OCCFLD 34	261
<u>MOS</u> <u>3513</u> <u>3521</u> <u>3522</u> <u>3531</u> <u>3535</u>	<u>TRAINING OUTPUT</u> 21 828 510 2492 510
OCCFLD 35	4361
<u>MOS</u> <u>4016</u> <u>4034</u> <u>4044</u> <u>4063</u>	<u>TRAINING OUTPUT</u> 94 108 11 51
OCCFLD 40	264
<u>MOS</u> <u>4111</u> <u>4131</u>	<u>TRAINING OUTPUT</u> 7 91
OCCFLD 41	98
<u>MOS</u> <u>4312</u> <u>4313</u>	<u>TRAINING OUTPUT</u> 44 5
OCCFLD 43	49
<u>MOS</u> <u>4421</u> <u>4422</u>	<u>TRAINING OUTPUT</u> 39 24
OCCFLD 44	63

<u>MOS</u>	<u>TRAINING OUTPUT</u>
4611	19
4621	3
4631	48
4651	4
4652	23
4653	1
4671	1
4675	9
OCCFLD 46	106

<u>MOS</u>	<u>TRAINING OUTPUT</u>
5526	10
5528	6
5534	30
5536	9
5537	14
5541	34
5543	9
5544	13
5546	21
5547	15
5563	14
5565	3
5574	20
5577	10
5593	10
OCCFLD 55	218

<u>MOS</u>	<u>TRAINING OUTPUT</u>
5811	490
5831	160
OCCFLD 58	650

<u>MOS</u>	<u>TRAINING OUTPUT</u>
*5921	6
*5922	6
*5923	10
*5929	6
5931	7
5932	4
5933	6
5934	4
5935	5
*5942	48
*5943	11
*5945	33
*5955	19

Enclosure (1)

<u>MOS</u>	<u>TRAINING OUTPUT</u>
*5956	12
*5957	4
*5958	24
*5962	6
*5963	24
*5964	10
*5982	11
	256

OCCFLD 59

<u>MOS</u>	<u>TRAINING OUTPUT</u>
*6012	136
*6013	29
*6014	53
*6015	14
*6016	9
*6018	6
*6022	88
*6023	4
*6024	51
*6025	12
*6026	21
*6028	5
*6036	7
*6042	286
*6052	82
*6053	23
*6054	58
*6055	75
*6062	109
*6064	119
*6072	76
*6075	163
*6076	36
*6077	51
*6078	24
*6082	93
	1630

OCCFLD 60

<u>MOS</u>	<u>TRAINING OUTPUT</u>
*6112	302
*6113	119
*6114	74
*6122	28
*6123	39
*6124	1
*6125	49
*6132	25
	637

OCCFLD 61

MOS	<u>TRAINING OUTPUT</u>
*6521	105
*6531	134
*6541	77

OCCFLD 65	316
-----------	-----

MOS	<u>TRAINING OUTPUT</u>
*6612	40
*6613	9
*6614	50
*6615	4
*6616	18
*6617	37
*6618	30
*6619	15
*6620	25
*6623	6
*6624	4
*6625	2
*6626	4
*6627	5
*6628	13
*6629	3
*6632	70
*6633	11
*6634	46
*6635	6
*6636	46
*6637	27
*6638	39
*6639	25
*6642	14
*6643	3
*6644	6
*6645	3
*6646	4
*6647	5
*6648	4
*6649	14
*6653	1
*6654	6
*6655	5
*6656	13
*6657	29
*6658	8
*6659	18
*6660	18
*6662	5
*6663	10

Enclosure (1)

MOS	<u>TRAINING OUTPUT</u>
*6664	2
*6665	2
*6666	2
*6667	7
*6672	5
*6673	4
*6674	3
*6682	15
*6683	25
OCCFLD 66	766
MOS	<u>TRAINING OUTPUT</u>
*6321	19
*6831	5
OCCFLD 68	24
MOS	<u>TRAINING OUTPUT</u>
*7011	90
*7041	125
*7051	190
OCCFLD 70	405
MOS	<u>TRAINING OUTPUT</u>
*7212	32
*7222	47
*7234	71
*7242	46
OCCFLD 72	196
MOS	<u>TRAINING OUTPUT</u>
*7312	90
*7322	93
*7372	8
*7382	47
OCCFLD 73	238
TOTAL	36274

Enclosure (1)

USMC OCCUPATIONAL FIELDS

OCCUPATIONAL FIELD

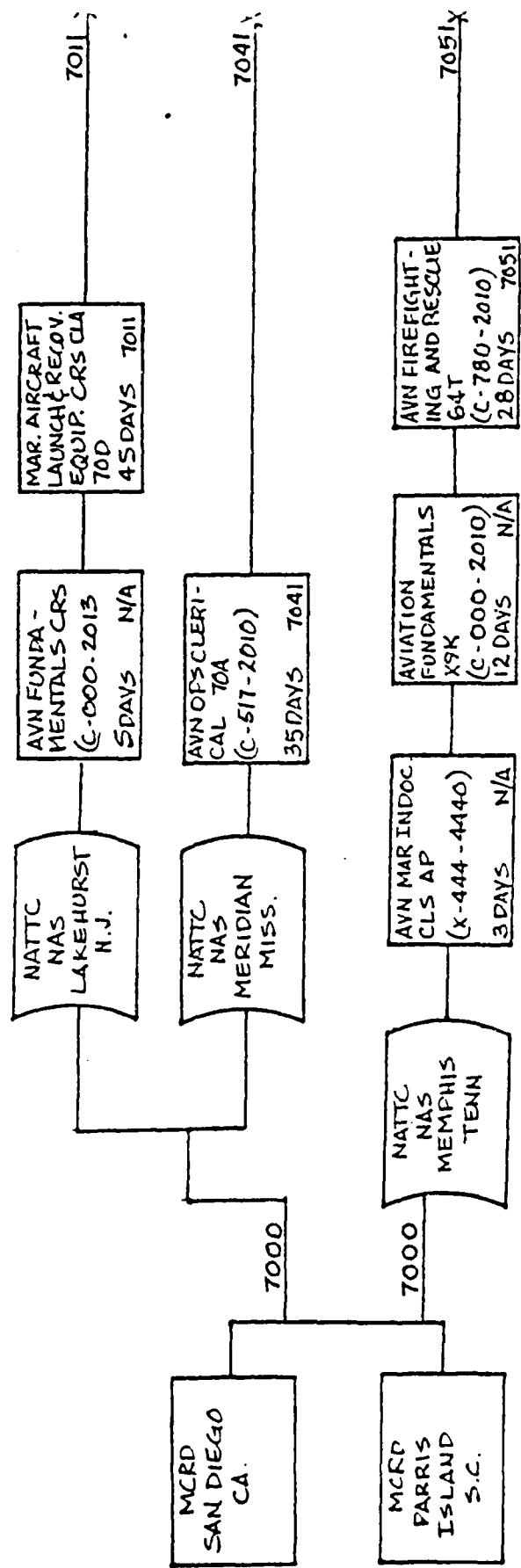
- 01 Personnel and Administration
- 02 Intelligence
- 03 Infantry
- 04 Logistics
- 08 Field Artillery
- 11 Utilities/Repair Services
- 13 Engineer Construction and Shore Party
- 14 Drafting, Surveying and Mapping
- 15 Printing and Reproduction
- 18 Tank and Amphibian Tractor
- 21 Ordnance
- 23 Ammunition and Explosive Ordnance Disposal
- 25 Operational Communications
- 26 Signals Intelligence/Ground Electronic Warfare
- 28 Telecommunications Maintenance
- 30 Supply Administration and Operations
- 31 Transportation
- 33 Food Services
- 34 Auditing, Finance and Accounting
- 35 Motor Transport
- 40 Data System
- 41 Marine Corps Exchange
- 43 Public Affairs
- 44 Legal Services
- 46 Photography
- 55 Band

USMC OCCUPATIONAL FIELDS (Cont'd)

- 58 Military Police and Corrections
- 59 Electronics Maintenance
- 60 Aircraft Maintenance
- 61 Aircraft Maintenance
- 65 Aviation Ordnance
- 66 Avionics
- 68 Weather Service
- 70 Aviations Operations
- 72 Air Control/Support/Anti-Air Warfare
- 73 Air Traffic Control/Enl. Flight Crews

OCCUPATIONAL FIELD 70 AVIATION OPERATIONS

10 MAY 1979



O - SCHOOL/MOS CONTINUATION
X - TERMINAL

TITLE
SSC(CIII)
LENGTH MOS

WN-8001-1

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I. INTRODUCTION

The purpose of this working note is to provide additional manpower models to those recommended in the MCR Technical Report 7910-2. The models are total manpower models that allow calculation of total variable manpower which, when added to fixed overhead, provides total manpower in support of training. The models are for Recruit Training, One Station Unit Training (OSUT) and Apprentice Training. The remaining Initial Skill Training total manpower models will be addressed in a report which models Skill Progression and Functional Training.

II. RECOMMENDED MODELS FOR CALCULATING TOTAL MANPOWER IN SUPPORT OF RECRUIT TRAINING, ONE STATION UNIT TRAINING, AND APPRENTICE TRAINING

A. GENERAL

The best method of calculating manpower requirements for training is to first calculate training load and then use a formula that equates training load to training manpower. The formulas MCR developed for Recruit Training manpower in Technical Report 7910-2 are based on structural analysis and used a building block concept of variable units (companies, flights, series). The same concept can be used for total manpower but must consider peak months when training uses the "surge" capacity of the variable units.

In order to calculate peak loading we used the Services' FY 81 Budget accession program distribution to illustrate peak loading. The peak is an end of month calculation for ease in computation. Unless a computer program is used, this gives a good approximation. The Marine Corps computer model does calculate a monthly peak at the peak day. Our calculation was compared and considering the accuracy of accession distribution projections, appears to be quite accurate. Recycles and attrition have been excluded from our calculations. We have assumed that recycles are a management problem that can be taken care of by vacancies due to attrition or by waiting. Attrition does not apply when using a unit based model; this assumes that once a unit is formed it continues regardless of attrition although it can accommodate recycles.

B. SAMPLE CALCULATIONS FOR RECRUIT TRAINING, OSUT, AND APPRENTICE TRAINING

1. Factors Needed to Compute Recruit Training, OSUT, and Apprentice Training Manpower Requirements

a. Course Lengths

Course lengths are used to ascertain the number of accessions that are in training at the end of each month. The following breaks out curriculum, weekends and fill time for each Service. The sum of these numbers is the course length used in our formulation of peak loading.

TOTAL DAYS IN TRAINING

	<u>Curriculum</u>	<u>Service Week</u>	<u>Including Weekends</u>	<u>Fill Time</u>	<u>Σ</u>
Army Recruit	35	--	49	7	56
OSUT	--	--	84 to 126	7	91 to 133
OSUT Average	--	--	92	7	99
Air Force Recruit	32	--	43	2	45
Navy Recruit	38	--	54	3	57 ^{1/}
Apprentice ^{2/}	--	--	28	3	31
Marine Corps Recruit	56 (Male)	6	72	5	77 ^{1/}

1/ Both Navy and Marine Corps include days for recycles in the course length, the Navy figure is 4 days and the Marine Corps figure is 3 days. These days have not been added.

2/ Estimated

b. Manpower and Trainees per Variable Unit

These values are taken from TR-7910-2 and are based on Service provided information.

	<u>MANPOWER</u>		<u>TRAINNEES</u>	
	<u>OFF</u>	<u>ENL</u>	<u>OPTIMUM</u>	<u>MAXIMUM</u>
Army (Recruit Company)	2	16	200	220
(OSUT Company)	2	14	200	220
Air Force (Recruit Flight)	--	3.2168	47.5	50
Navy (Recruit Company)	--	4	70 ^{1/}	84 ^{1/}
Marine Corps (Recruit Series)	2	13	260	300

1/ Navy Female Recruit Companies have 55 Optimum/Maximum.

c. Peak Workload (PWL)

Peak Workload is calculated by summing the end of month accessions in training from each monthly accession cohort. The assumption is made of even distribution of entering accessions during each month. Recycles and attrition are not considered. The total days in training figure is used to determine when accessions are no longer in training.

d. Required Variable Units and Manpower

The monthly summation of trainees in training is divided by the number of trainees per variable unit to determine total required units. This number of units is multiplied by the manpower per variable unit to get total variable manpower. The variable manpower and non-variable manpower are added to get total manpower for Recruit Training.

2. Methodology

The following calculations are arranged by Service. The Army calculations provide a training manpower methodology for Recruit Training and OSUT. The Navy calculations address Recruit and Apprentice Training. The Air Force and Marine Corps calculations address Recruit Training. All of the methodologies, except Navy Apprentice Training, are based on variable unit staffing to meet peak monthly loads and are accession "driven." This feature is essential to provide an adequate number of Recruit and OSUT units.

a. Army Methodology

(1) Recruit Training

Accessions are assumed to arrive uniformly within each month and are distributed between Recruit and OSUT according to the Army training program for each fiscal year. During FY 81 the distribution is 46.7% Recruit and 53.3% OSUT. Only months having high input are used.

FY 81 ACCESSIONS (NPS)

	<u>ACTIVE</u>	<u>RC</u>	<u>Σ</u>	<u>Recruit Training (46.7%)</u>	<u>OSUT (53.3%)</u>
MAR	9600	5400	15000	7005	7995
APR	7900	5700	13600	6351	7249
MAY	9400	9700	19100	8920	10180
JUN	14400	8100	22500	10508	11992
JUL	17000	8000	25000	11675	13325
AUG	13600	6300	19900	9293	10607
SEP	13900	6100	20000	9340	10660
(FY 82) OCT	14400	7000	21400	9994	11406

INPUT TO RECRUIT TRAINING

END OF MONTH IN TRAINING^{1/}

		<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>
MAY	8920	7481	--	--	--	--
JUN	10508	10508	8757	--	--	--
JUL	11675	--	11675	9415	--	--
AUG	9293	--	--	9293	7494	--
SEP	9340	--	--	--	8340	8095
OCT	9994	--	--	--	--	9994
(PWL)		17989	20432	18711	16834	18089

1/ The calculation for end of month in training uses a 56 day time period for total time in training. Thus, at end of June the May accessions that entered during the first five days have graduated: $(31+30) - 56 = 5$. Therefore, the end of month calculation for May accessions still in training at end June is $(8920 \div 31) \times (31 - 5)$ or $287.74 \times 26 = 7481$.

REQUIRED COMPANIES TO MEET PEAK WORKLOAD (PWL)

	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>
Companies: Normal (200)	90	102	93	84	90
Maximum (220)	82	93	85	77	82
<u>Variable Manpower</u>	<u>Officer</u>	<u>Enlisted</u>	<u>Civilian</u>	<u>Total</u>	
93 Companies x 2 Officers =	186			186	
x 16 Enlisted =		1488		1488	
Σ_{VM} =	186	1488		1674	

<u>Fixed Manpower</u>	<u>Officer</u>	<u>Enlisted</u>	<u>Civilian</u>	<u>Total</u>
5 brigades (HQ)	66	311	41	418
6 training groups	90	849	35	974
20 battalions (HQ)	<u>59</u>	<u>282</u>	<u>13</u>	<u>354</u>
Σ_{FM}	215	1442	89	1746
Σ_{VM} Σ_{FM}	401	2930	89	3420
FY 81 budget estimate (FY 81)	401	2854	106	3361
Δ	--	-76	+17	-59

The comparison of MCR derived manpower and that provided in the budget estimate allows for a precise analysis of Recruit Training. The details of the fixed manpower are provided in Appendix A.

(2) OSUT

FY 81 DISTRIBUTION OF OSUT TRAINEES BY WEEKS OF TRAINING

<u>Weeks</u>	<u>Trainees</u>	<u>(%)</u>	<u>Trainee-Weeks</u>	<u>Ave. Weighted Course Lengths</u>
12	49,642	(42.9)	595,704	
13	27,656	(23.9)	359,528	
14	19,671	(17.0)	275,394	
15	14,811	(12.8)	222,165	
16	115	(0.1)	1,840	
17	3,009	(2.6)	51,153	
18	<u>810</u>	<u>(0.7)</u>	<u>14,580</u>	
TOTAL	115,714	(100.0)	1,520,364	13.139 weeks or 92 days

The average course length of 92 days becomes 99 days after adding 7 days fill time.

		<u>END OF MONTH IN TRAINING</u>					
<u>INPUT TO OSUT</u>	<u>MAY</u>	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>	
MAR 7,995	7,995	2,063	-	-	-	-	
APR 7,249	7,249	7,249	1,691	-	-	-	
MAY 10,180	10,180	10,180	10,180	2,299	-	-	
JUN 11,992	-	11,992	11,992	11,992	2,798	-	
JUL 13,325	-	-	13,325	13,325	13,325	3,009	
AUG 10,607	-	-	-	10,607	10,607	10,607	
SEP 10,660	-	-	-	-	10,660	10,660	
OCT 11,406	-	-	-	-	-	11,406	
$\Sigma(PWL)$		31,484	37,188	38,223	37,390	35,682	

By Course Exact Calculation:	31,431	37,149	38,208	37,356	35,710
Δ	-53	-39	-15	-34	+28

Since the difference is so small the average course length can be used without introducing any significant error.

REQUIRED COMPANIES TO MEET PEAK WORK LOAD

	<u>JUN</u>	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	<u>OCT</u>
Companies: Normal (200)	156	185	190	185	177
Maximum (220)	142	168	<u>173</u>	168	161

<u>VARIABLE MANPOWER</u>	<u>OFFICER</u>	<u>ENLISTED</u>	<u>CIVILIAN</u>	<u>TOTAL</u>
173 Companies				
x 2 officers	= 346			346
x 14 enlisted	=	2,422		2,422
Σ_{VM}	= 346	2,422		2,768

FIXED MANPOWER

8 brigades (HQ)	167	750	176	1,093
8 training groups ^{1/}	156	3,880	249	4,285
42 battalions (HQ)	<u>142</u>	<u>932</u>	<u>180</u>	<u>1,254</u>
Σ_{FM}	465	5,562	605	6,632
$\Sigma_{VM} \Sigma_{FM}$	811	7,984	605	9,400
FY 81 budget estimate (FY 81)	<u>864</u>	<u>7,271</u>	<u>538</u>	<u>8,673</u>
Δ	+53	-711	-67	-727

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This comparison of MCR derived manpower and that provided in the budget estimate allows for a precise analysis of OSUT. The details of the fixed manpower are provided in Appendix A.

1/ Includes 23 officers, 583 enlisted and 76 civilians in 1st AIT Brigade, Ft. Knox, assigned to training companies.

(3) Manpower Equations

The equations for calculating the monthly peak work load (PWL) which is the "driver" for variable manpower is given below. Note that the calculation must be accomplished for several months in order to find the month having the highest PWL. The following notation will be used in all equations.

- Recruit Training PWL:

$$PWL_M = A_M + (L - D_M) \frac{A_{M-1}}{D_{M-1}}$$

- OSUT PWL:

$$PWL_M = A_M + A_{M-1} + A_{M-2} + (L - D_M - D_{M-1} - D_{M-2}) \frac{A_{M-3}}{D_{M-3}}$$

Where (this notation will be used for all Services):

PWL is expected end of month trainee strength

M = Month under examination

A_M = Accessions in Month M

L = Total days in training

D = Days in a given month

- Total Manpower (Recruit or OSUT):

$$\text{Total Manpower} = \sum_{VM} + \sum_{FM}$$

$$\sum_{VM} = \frac{PWL_M}{200 \text{ (Workload/Company)}} \text{ Maximum } \times 18 \text{ (Instructors/Recruit Company) or } \times 16 \text{ (Instructors/OSUT Company)}$$

$$\sum_{FM} = \sum \text{ brigades, battalions, training groups (see Appendix A).}$$

b. Air Force Methodology

(1) Recruit Training

Only Recruit Training is addressed for the Air Force. The FY 80 distribution of accessions was used for the Air Force since the FY 81 accession program appears to be an unlikely distribution (January peak).

	FY 80 ACCESSIONS (NPS)			END OF MONTH IN TRAINING				
	Active	RC	Σ	JUN	JUL	AUG	SEP	OCT
MAY	4,966	660	5,626	2,730	-	-	-	-
JUN	6,213	660	6,873	6,873	3,206	-	-	-
JUL	7,032	660	7,692	-	7,692	3,486	-	-
AUG	7,033	660	7,693	-	-	7,693	3,735	-
SEP	7,033	660	7,693	-	-	-	7,693	3,598
OCT	5,225	660	5,885	-	-	-	-	5,885
Σ (PWL)				-	10,898	11,179	11,428	-

REQUIRED FLIGHTS TO MEET PWL

Flights: Normal (47.5)	230	236	241
Maximum (50)	218	224	<u>229</u>

	<u>OFFICER</u>	<u>ENLISTED</u>	<u>CIVILIAN</u>	<u>TOTAL</u>
229 Flights \times 2.5196(TI) =		577.0		
\times .6972(AI) =		159		
Σ_{VM}		736		736
Σ_M (Staff)	32	47	18	97
$\Sigma_{VM} \Sigma_{FM}$	32	783	18	833
FY 81 budget estimate (FY 80)	32	797	18	847
Δ		+14		+14

As the concept of variable units is an Air Force innovation it is not surprising that the figures are so close. The organization of the Basic Military Training School is given in Appendix B.

(2) Manpower Equation (Recruit Training)

$$PWL = A_M + (L - D_M) \frac{A_{M-1}}{D_{M-1}}$$

$$\text{Total Manpower} = \Sigma_{VM} + \Sigma_{FM}$$

$$\Sigma_{VM} = \frac{PWL}{50 \text{ (workload/flight)}} \text{ Maximum}$$

Σ_{FM} = Staff of BMT School (see Appendix B)

c. Navy Methodology

Navy Recruit and Apprentice Training are colocated and share most of the same fixed support which is carried in Recruit Training. Navy Recruit Training is peak loaded. Navy Apprentice Training is not calculated based on peak workload but uses total workload. The concept of variable unit does not pertain to Apprentice Training.

(1) Recruit Training

	FY 81 ACCESSIONS (ACT & RES)			END OF MONTH IN TRAINING							
	NPS			TOTAL	(FEMALE)	PS	Σ	JUN	JUL	AUG	SEP
MAY	7,409	(930)	100	7,509	6,783	-	-	-	-	-	-
JUN	9,107	(930)	100	9,207	9,207	8,286	(837)	-	-	-	-
JUL	9,034	(930)	100	9,134	-	9,134	(930)	7,954	(780)	-	-
AUG	9,099	(930)	100	9,199	-	-	9,199	(930)	8,308	(780)	-
SEP	8,596	(930)	100	8,696	-	-	-	-	8,696	(930)	7,826
OCT	7,392	(930)	100	7,492	-	-	-	-	-	-	7,492
Σ (PWL)				-	17,420	(1767)	17,153	(1710)	17,004	(1710)	-

REQUIRED COMPANIES TO MEET PWL

Companies: Normal (70)	^{1/}	234/33	221/32	219/32
Maximum (84)	^{1/}	<u>187/33</u>	184/32	183/32

	<u>OFFICER</u>	<u>ENLISTED</u>	<u>CIVILIAN</u>	<u>TOTAL</u>
220 Companies x 4 enlisted -		880		880
Σ_{VM}		880		880
Σ_{FM} (Staff/Support)	99	303	10	412
$\Sigma_{VM} \Sigma_{FM}$	99	1,183	10	1,292
FY 81 budget estimate (FY 81)	99	1,323	10	1,432
Δ	-	+140	-	+140

The organization of the fixed manpower is provided in Appendix C.

1/ Female Recruit Companies have 55 trainees (optimal/maximum)

(2) Apprentice Training

Navy Apprentice Training is located at each of the three Recruit Training Commands (RTC). The Apprentice Training Division is part of the organization and has little fixed manpower. Each Apprentice Division has an officer in charge, an enlisted adjutant, two enlisted clerks, a maintenance petty officer, and three enlisted course counselors. The remainder of the personnel are instructors and the numbers vary based on workload.

Apprentice Training fixed manpower (Σ_{FM})

3 officers, 21 enlisted (1 off., 7 enl., at each RTC)

Apprentice Training variable manpower (FY81)

127 enlisted instructors

FY 81 Workload (estimated):

$$\frac{23,731 + 23,731 (.99)}{2} \times \frac{31}{365} = 2,005$$

$$\Sigma_{VM} = 127 \times \frac{\text{New Workload}}{2,005}$$

$$\Sigma_{FM} = 3 \text{ officers, 21 enlisted}$$

$$\text{Total Manpower} = \Sigma_{VM} + \Sigma_{FM}$$

(3) Manpower Equations

(a) Recruit Training

$$PWL = A_M + (L - D_M) \frac{A_{M-1}}{D_{M-1}}$$

$$\text{Total Manpower} = \Sigma_{VM} + \Sigma_{FM}$$

$$\Sigma_{VM} = \frac{PWL_M}{841/(\text{Workload/Male Company})} \text{ Maximum} \times 4 \text{ (Instructors/Company)}$$

Σ_{FM} = Staff of three RTCs (see Appendix C).

1/ 55 for Female Companies.

(b) Apprentice Training

FM = 1 officer, 7 enlisted at each RTC

Σ_{FM} = 3 officers, 21 enlisted

$\Sigma_{VM} = \frac{127}{2005}$ (Workload) = .06334 Workload

d. Marine Corps Methodology

(1) Recruit Training

Recruit Training is addressed herein. The Marine Corps is the only Service with a Recruit Training Model. We have compared our method with their model and find our's satisfactory.

	FY 81 MALE ACCESSIONS (NPS)			END OF MONTH IN TRAINING				
	ACTIVE	RESERVE	Σ	JUN	JUL	AUG	SEP	OCT
MAY	2,550	678	3,228	3,228	1,664	-	-	-
JUN	4,700	1,198	5,898	5,898	5,898	2,955	-	-
JUL	4,400	878	5,278	-	5,278	5,278	2,720	-
AUG	4,300	814	5,114	-	-	5,114	5,114	2,640
SEP	3,600	758	4,358	-	-	-	4,358	4,358
OCT	3,450	526	3,976	-	-	-	-	3,976
Σ (PWL)				-	12,840	13,347	12,192	-
(USMC Model - AVG Load)				-	(11,677)	(13,282)	(12,607)	-
(USMC Model - Peak Load)				-	(12,677)	(13,625)	(13,248)	-

REQUIRED SERIES TO MEET PWL

	<u>JUL</u>	<u>AUG</u>	<u>SEP</u>	
Series: Normal (260)	50	52	47	
Maximum (300)	43	45	41	
	<u>OFFICER</u>	<u>ENLISTED</u>	<u>CIVILIAN</u>	<u>TOTAL</u>
45 Series x 2 officers	= 90			90
x 13 enlisted	=	585		585
Σ_{VM}	90	585		675
Σ_{FM} (Other Recruit Training)	155	1,443	10	1,608
$\Sigma_{VM} \Sigma_{FM}$	245	2,028	10	2,283
FY 81 budget estimate (FY 81):	260	2,146	10	2,416
Δ	+15	+118		+133

Some of this difference is due to the Marine Corps having 66 Series, and the 45 Series used in the calculation above. The organization of Marine Corps Recruit Training is provided in Appendix D.

(2) Manpower Equation (Recruit Training)

$$PWL_M = A_M + A_{M-1} + (L - D_M - D_{M-1}) \frac{A_{M-2}}{D_{M-2}}$$

$$\text{Total Manpower} = \Sigma_{VM} + \Sigma_{FM}$$

$$\Sigma_{VM} = \frac{PWL_M}{300 \text{ (Workload/Series)}} \text{ Maximum} \times 15 \text{ (Instructors/Series)}$$

Σ_{FM} = Other Recruit Training Support (see Appendix D).

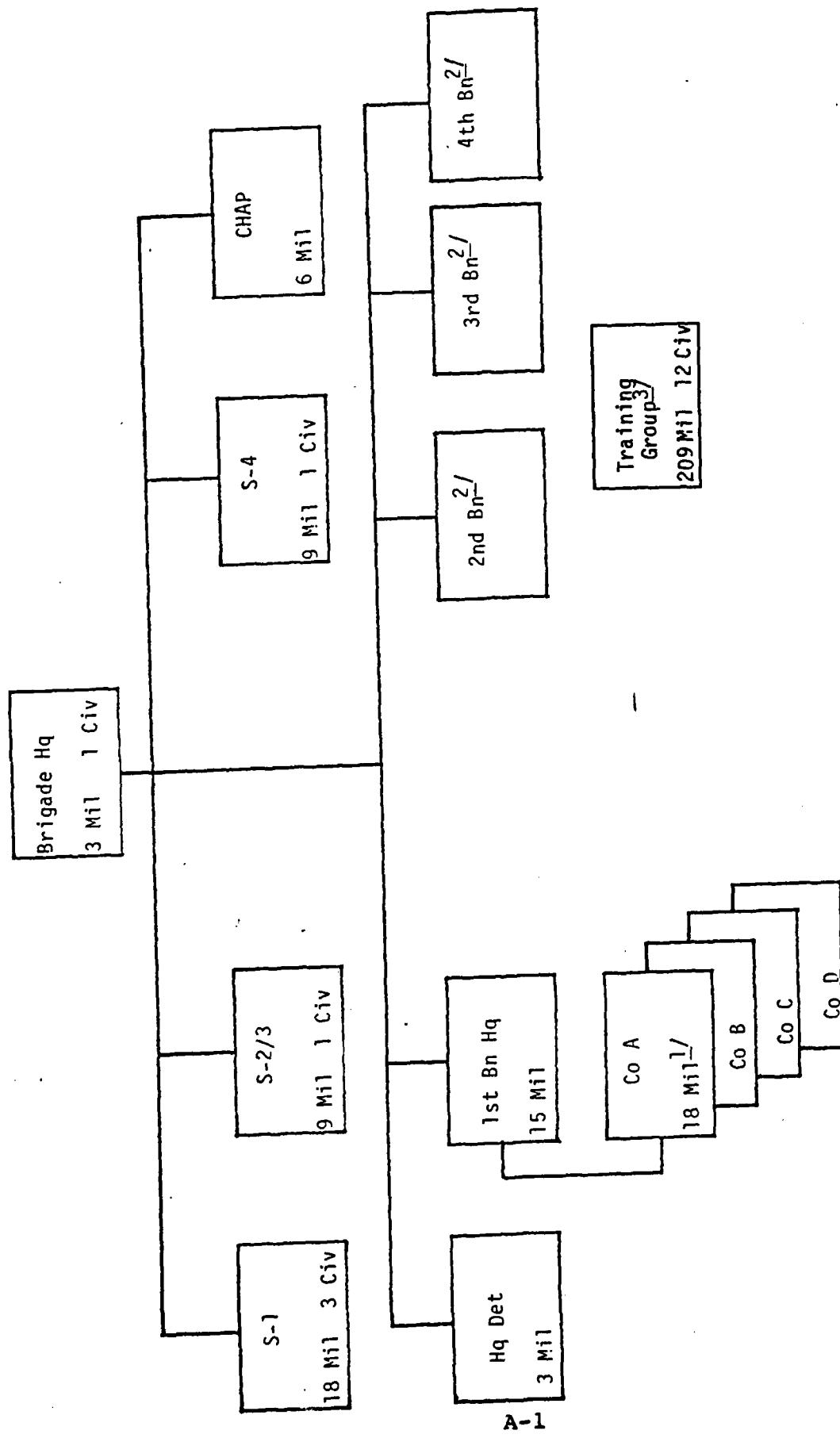
III. CONCLUSION

Estimates of training manpower requirements which are reasonably accurate for each Service can be derived from easily obtained data applied to the formulas suggested in this report.

Programmed or alternative sets of data on non-prior service accessions, course lengths, and normal or maximum loads per training unit can be obtained from each Service at any stage of the planning, programming and budgeting process.

APPENDIX A

ARMY



1/ 12 Drill Sergeants; 6 others per company.

2/ All Bns identically organized and staffed.

3/ Hqs, Staff, Supply: 42 Mil, 12 Civ
Training Committees: 167 Mil

BASIC TRAINING STRUCTURE

U.S. ARMY MANPOWER
IN SUPPORT OF RECRUIT TRAINING^{1/2/}

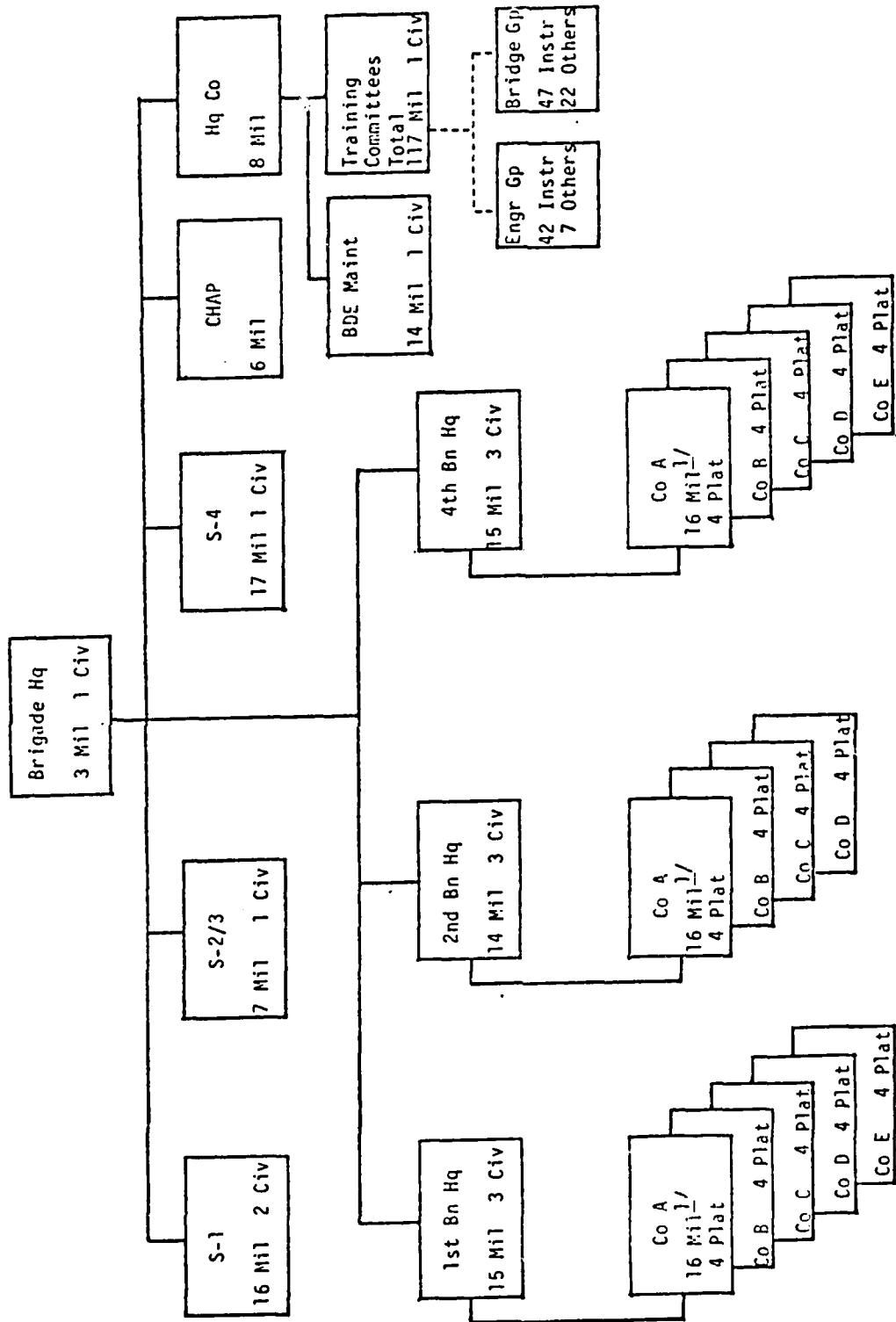
	<u>OFFICERS</u>	<u>ENLISTED</u>	<u>CIVILIAN</u>	<u>TOTAL</u>
Ft. Dix, NJ				
Headquarters, Training Center	15	90	3	108
Training Committee Group	18	174	2	194
Battalion Hqs. (4)	<u>12</u>	<u>41</u>	—	<u>53</u>
TOTALS	45	305	5	355
Ft. Jackson, SC				
Headquarters, Training Center	5	48	11	64
Headquarters, Brigade (2)	27	69	15	111
Training Committee Group	28	212	5	245
Battalion Hqs. (9)	<u>27</u>	<u>148</u>	—	<u>175</u>
TOTALS	87	477	31	595
Ft. Knox, KY				
Headquarters, Training Center	1	52		53
Headquarters, Brigade	4	12	7	23
Training Committee Group	19	178	15	212
Battalion Hqs.	<u>2</u>	<u>10</u>	<u>2</u>	<u>14</u>
TOTALS	26	252	24	302
Ft. Leonard Wood, MO				
Headquarters, Brigade	14	40	5	59
Training Committee Group	24	184	13	221
Battalion Hqs. (4)	<u>12</u>	<u>45</u>	<u>7</u>	<u>64</u>
TOTALS	50	269	25	344
Ft. McClellan, AL				
Training Committee Group	1	59		60
Battalion Hqs. (2)	<u>6</u>	<u>38</u>	<u>4</u>	<u>48</u>
TOTALS	7	97	4	108

1/ Extracts: 1 OCT 79 TDAS

2/ Excludes Training Companies Average 2 Officers and 16 Enlisted per Company

U.S. ARMY MANPOWER
IN SUPPORT OF RECRUIT TRAINING (Continued)

	<u>OFFICERS</u>	<u>ENLISTED</u>	<u>CIVILIAN</u>	<u>TOTAL</u>
Ft. Sill, OK				
Training Committee Group	—	42	—	42
GRAND TOTALS	215	1,442	89	1,746
(Variable Training Companies) (89) 1/	(184)	(1,369)	—	(1,553)
	(399)	(2,811)	(89)	(3,299)
FY81 Undistributed Change	+2	+43	+17	+62
FY81 Totals in FY 81 Budget Estimate	401	2,854	106	3,361



1/ 10 Drill Sergeants; 6 others per company.

ONE STATION UNIT TRAINING STRUCTURE

U.S. ARMY MANPOWER
IN SUPPORT OF ONE STATION UNIT TRAINING^{1/2/}

	<u>OFFICERS</u>	<u>ENLISTED</u>	<u>CIVILIAN</u>	<u>TOTAL</u>
Ft. Benning, GA				
Headquarters, Brigade	20	71	13	104
Training Committee Group	40	970	8	1,018
Battalion Hqs. (7)	<u>20</u>	<u>113</u>	<u>—</u>	<u>133</u>
TOTALS	80	1,154	21	1,255
Ft. Bliss, TX				
Headquarters, Brigade	12	36	12	60
Training Committee Group	24	369	7	400
Battalion Hqs. (2)	<u>6</u>	<u>20</u>	<u>5</u>	<u>31</u>
TOTALS	42	425	24	491
Ft. Dix, NJ				
Headquarters, Training Center	14	95	4	113
Headquarters, Brigade	1	7	—	8
Training Committee Group	5	255	5	265
Battalion Hqs. (4)	<u>15</u>	<u>67</u>	<u>—</u>	<u>82</u>
TOTALS	35	424	9	468
Ft. Knox, KY				
Headquarters, Brigade (2)	30	183	56	269
Training Groups ^{3/}	23	583	76	682
Battalion Hqs. (8)	<u>31</u>	<u>135</u>	<u>71</u>	<u>237</u>
TOTALS	84	901	203	1,188
Ft. Leonard Wood, MO				
Headquarters, Brigade (2)	27	116	18	161
Training Committee Group (2)	7	499	15	521
Battalion Hqs. (6)	<u>24</u>	<u>25</u>	<u>51</u>	<u>340</u>
TOTALS	58	880	84	1,022

1/ Extracts 1 OCT 79 TDAS

2/ Excludes Training Company Average 2 Officers and 14 Enlisted per Company

3/ Personnel Assigned to Training Companies.

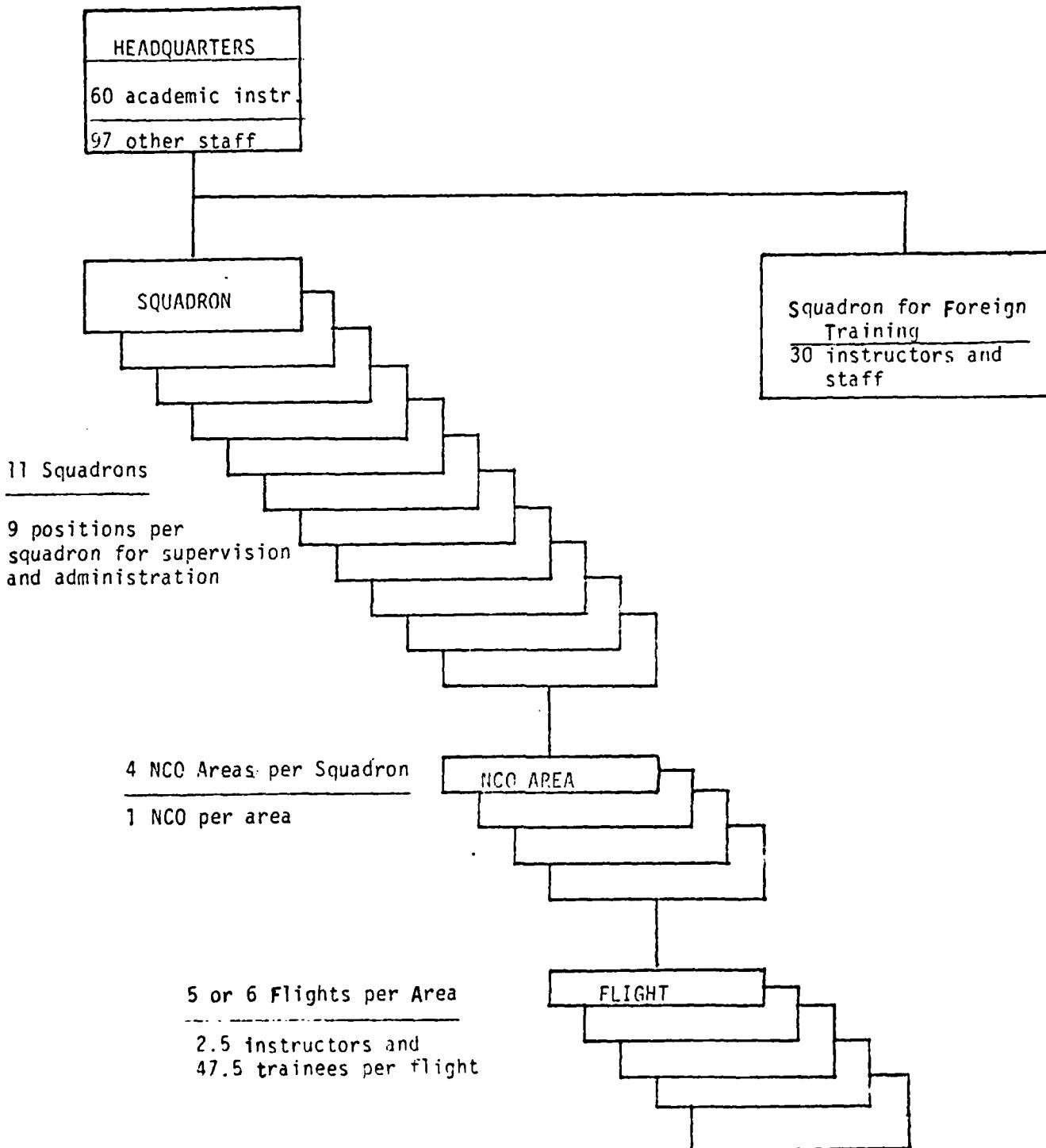
U.S. ARMY MANPOWER
IN SUPPORT OF ONE STATION UNIT TRAINING (Continued)

	<u>OFFICERS</u>	<u>ENLISTED</u>	<u>CIVILIAN</u>	<u>TOTAL</u>
Ft. Sill, OK				
Headquarters, Training Center	30	109	29	168
Training Committee Group	24	303	13	340
Battalion Hqs. (6)	<u>18</u>	<u>80</u>	<u>10</u>	<u>108</u>
TOTALS	72	492	52	616
Ft. Gordon, GA				
Headquarters, Brigade	19	105	35	159
Training Committee Group (2)	17	611	118	746
Battalion Hqs. (6)	<u>19</u>	<u>182</u>	<u>37</u>	<u>238</u>
TOTALS	55	898	190	1,143
Ft. McClellan, AL				
Headquarters, Brigade	14	28	9	51
Training Committee Group	16	290	7	313
Battalion Hqs. (30)	<u>9</u>	<u>70</u>	<u>6</u>	<u>85</u>
TOTALS	<u>39</u>	<u>388</u>	<u>22</u>	<u>449</u>
GRAND TOTAL	465	5,562	605	6,632
(Variable Training Companies) (212) ^{1/}	<u>(430)</u>	<u>(2,972)</u>	<u> </u>	<u>(3,402)</u>
	<u>(895)</u>	<u>(8,534)</u>	<u>(605)</u>	<u>(10,034)</u>
FY 81 Undistributed Change	-31	-1,263	-67	-1,361
FY 81 Totals in FY 81 Budget Estimate	864	7,271	538	8,673

APPENDIX B

AIR FORCE

BASIC MILITARY TRAINING SCHOOL

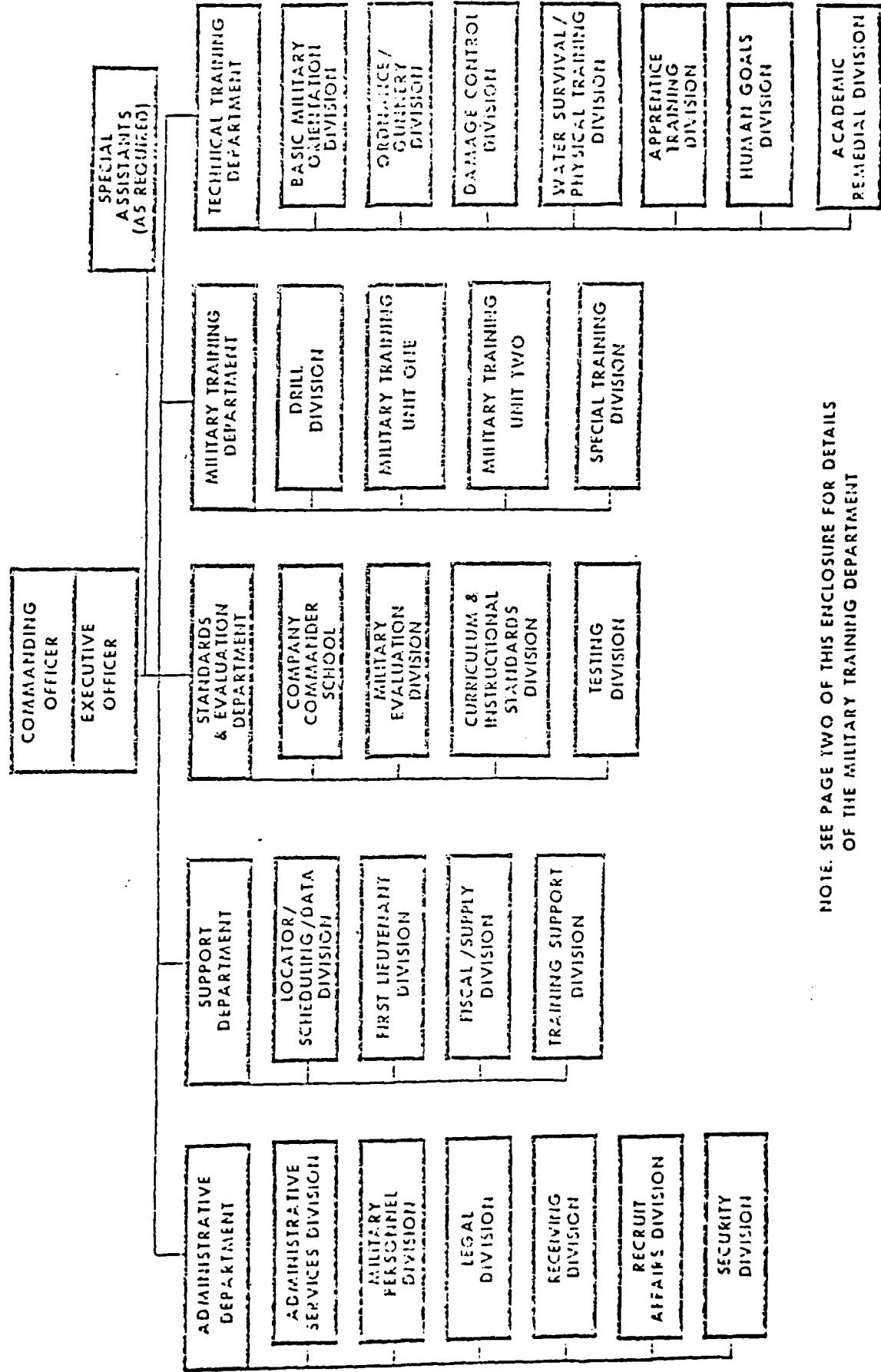


ORGANIZATION AND STAFFING OF BASIC MILITARY TRAINING SCHOOL, LACKLAND AIR FORCE BASE

APPENDIX C

NAVY

STANDARD ORGANIZATION - NAVAL RECRUIT TRAINING COMMAND



NAVAL RECRUIT TRAINING COMMANDS

DEPARTMENTS/MANPOWER

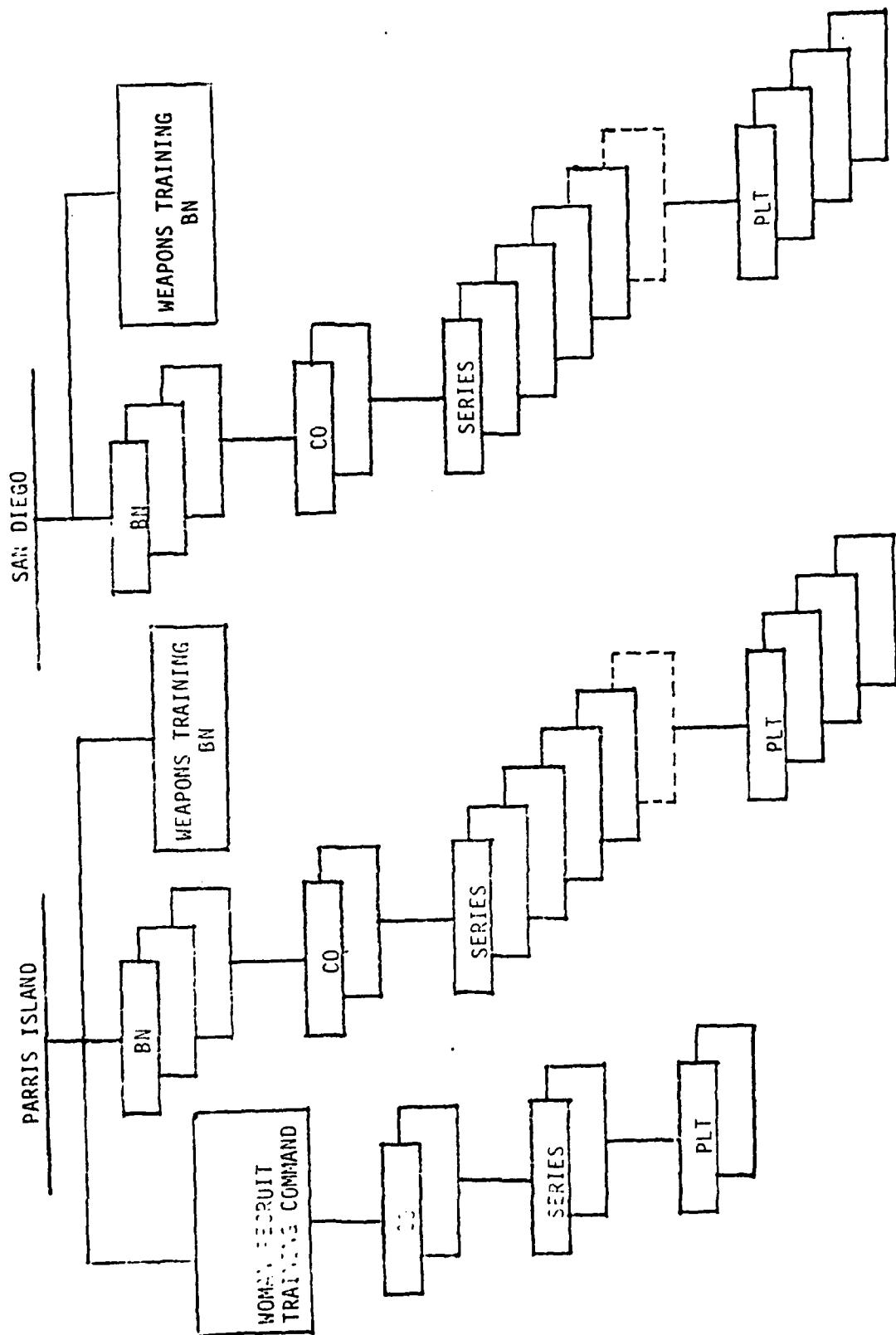
	ADMINISTRATIVE		TRAINING SUPPORT		STANDARDS & EVALUATION		MILITARY TRAINING		TECHNICAL TRAINING		TOTAL	
	OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL	OFF	ENL
RTC Great Lakes												
Training Command	7	24	2	33	2	-	16	15	5	44	32	116
Co CDRs RTC	-	20	-	9	-	18	-	274	-	82	-	403
Apprentice	-	-	-	-	-	-	-	-	(1)	(58)	(1)	(58)
OS Vet	-	-	-	-	-	-	-	-	-	(8)	-	(8)
TOTAL	1/	-	-	-	-	-	-	-	-	-	32	519
RTC Orlando												
Training Command	9	12	2	13	2	1	15	15	5	31	33	72
Co CDRs RTC	-	14	-	20	-	23	-	189	-	55	-	301
Apprentice	-	-	-	-	-	-	-	-	(1)	(43)	(1)	(43)
TOTAL	1/	-	-	-	-	-	-	-	-	-	34	373
RTC San Diego												
Training Command	7	30	3	37	3	1	16	14	5	33	34	115
Co CDRs RTC	-	18	-	14	-	17	-	198	-	60	-	307
Apprentice	-	-	-	-	-	-	-	-	(1)	(47)	(1)	(47)
TOTAL	1/	-	-	-	-	-	-	-	-	-	34	422

1/ Note: Apprentice and OS Vet are in PE84731 and not included in total.

Grand Total	PE84711	99 1314
Training Command	(Fixed)	(99)(303)
Co CDRs RTC	(Variable)	(1011)
Apprentice	(PE84731)	3 148

APPENDIX D

MARINE CORPS



RECRUIT DEPOT TRAINING CAPACITY

MARINE CORPS MANPOWER
IN SUPPORT OF RECRUIT TRAINING^{1/}

	<u>OFF</u>	<u>ENL</u>
HQ Parris Island Recruit Training Regt.	22	260
HQ San Diego Recruit Training Regt.	31	260
Weapons Training BN PI	13	260
Woman Recruit Training CMD PI	11	85
Weapons Training BN CMP PEN ^{2/}	15	275
Recruit Training BN (3) PI	96 (66)	630 (429)
Recruit Training BN (3) SD	<u>99 (66)</u>	<u>501 (429)</u>
SUBTOTAL	287 (132)	2,301 (858)
FY 80 Undistributed Manpower Change	<u>-27</u>	<u>-155</u>
TOTAL in FYDP (FY 80)^{3/}	260 (132)	2,146 (858)^{4/}

1/ Extracts 1 SEP 1979 of T/Os.

2/ Conducts range firing for San Diego.

3/ 28 SEP 79 update.

4/ 132 officers, 858 enlisted in the series which are variable.

